

FREE
iMac Buyer's Guide
Pullout Section
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MachHome

Solutions for Work, Play

The Big Picture

Annual Video Issue

How to Buy DV Cams
Tips & Tricks for iMovie
Digital Cameras
Video Conferencing 101

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AOL 5: The New Look
The Latest on Mac OS X

In Every Issue: Tips & Tricks, The Mac Works



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Rita

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Microsoft

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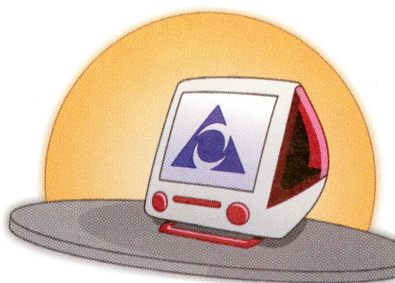
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For even more tips, tricks, and answers, look to the *iMac Buyer's Guide*. In this issue, find information online, upgrade your email application, and chat online with your voice.

www.machome.

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Rating System

- ★★★★★ **Mac-nificent.** You gotta get it. No flaws.
- ★★★★ **Excellent.** Recommended even if it has a minor flaw or two.
- ★★★ **Average.** Despite problems, still a worthwhile product.
- ★★ **Below Average.** Has serious flaws that limit its usefulness or fun.
- ★ **Poor.** Avoid this product at all costs.

Music To My Ears

Over the past few months we've been working hard to polish up the mix of content we deliver. Zack Stern joined us as Senior Editor in October and with his guidance, you now get the diverse tips and solutions throughout most of the magazine that you asked for in my annual subscriber study last year.

The feedback has been great! One person wrote in to say, "I don't know what's going on at *MacHome*, but it's awesome!" Music to my ears, and thanks to all my editors and contributors for making the changes stick.

For your reading pleasure this month, we're talking digital video and imaging. Sandy had a lot of fun with the staff, auditioning different digital cameras. Everyone took turns trying

ing to turn them on and actually shoot a picture without referring to a manual — I refused to let them publish the actual pictures for fear that they might incriminate us. Our iMovie Survival Guide (almost) guarantees success for any budding

director, and Zack provides an indispensable list of what you need to look at when comparing digital video cameras.

Ross explains videoconferencing in Your Office and Zack (our own budding videographer) walks you through the process in this month's Mac Workshop.

Jackie immersed herself in AOL's new version 5 for the Mac and gives you an in-depth look at the feature list, the benefits, and the gotcha's in NetLife, and Carolyn introduces us to eBooks in Your Family.

As always, we've reviewed and rated the latest hardware and software, and we give you more tips, tricks, and advice than anyone. Enjoy, and tell me what you think: www.machome.com/aprilfeedback.

On to business: We have two new staff

members (MacHomies) I'd like to introduce. Sandy Brundage joins us this month as Features Editor, and Kevin Octavio as Director of Advertising. Both bring a wealth of experience and ideas to our team. While Sandy already has more story ideas than we could possibly print in six months, she wants to hear from you: features@machome.com.

Kevin is working to enhance our overall product line — you'll see a few new sponsors with special offers on our CD next month, and you can subscribe to our new, free email newsletter written for teachers and parents: MacHome Classroom. The subscription form is linked off our homepage at www.machome.com. While you're there, sign up for our free Hot Tips email newsletter if you've not done so already. Pat fills it with tips and news you can use each week — it's great, it's free; try it, and see! You can always unsubscribe later if you find yourself overwhelmed with ideas.

Joy Jacob, our vice president of art and production, is responsible for the design of each issue. Joy has also been the driving force behind the redesign of our Website, which will be rolling out over the month of March. I think it looks great and is easy to navigate — let me know what you think.



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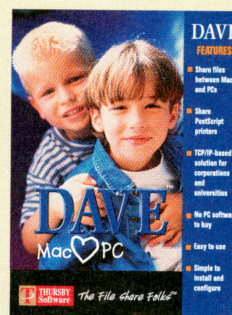
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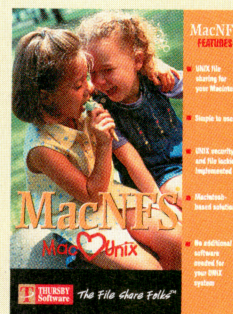
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Smooth Sailing

While reading the January 2001 issue of *MacHome*, I was pleasantly surprised by the new format. I find it more focused, organized, and useful. Over the past year I felt the magazine had been drifting without a rudder.

— Glen Roberts

Big Points

I really love MHJ for its great news, reviews, and feature article content — it has replaced Macworld as my #1 Mac magazine. The article on routers was great, thanks. And I also really love your increased game coverage! The *Myst III* exclusive was great!

One thing you said about IE 5 and the larger fonts — I love it! [See the February, 2001 Tips & Tricks — Ed.] As a graphic designer I work at 1024 x 768, and the increased font size in IE 5 is such a blessing. I used to prefer surfing on my PC because things were just easier to read. Now I'm back on my Mac full time. :-)

Again, great magazine!

— Tom Gaglione

It Remembers Who I Talk To

Zack Stern's review of *Entourage* ("Why *Entourage*?" January 2001) provided an excellent, detailed overview of Microsoft's newest edition to Office 2001 for the Mac.

However, one of the features mentioned in passing by Stern will create for many a love-hate relationship. *Entourage* remembers the last 150 incoming emails to offer suggestions when addressing a new message. This may seem like a wonderful option unless you get endless, mindless messages from list serve groups, unwanted spam that your ISP is unable to catch, or one of those titillating XXX-

rated messages, which manages to slip by the best of filters. All of these are "remembered" in your email database. So when you go to address an email, these unwanted addresses pop up and stare you in the face.

My only question is this: Can this feature be disabled and the unwanted addresses deleted? Please, Mr. Stern, tell us this beastie can be defanged!

— Edward Webster

✍ *The trick is to use the Junk Mail filter in the Tools menu. If Entourage classifies something as Junk, it will omit it when it auto-completes the email addresses. To work around auto-complete otherwise, you need to create a rule to classify every message as Junk. But remember that even without the Junk filter, after you type four or five letters, it's mathematically improbable that you'll hit more than one email address.*

Hello, Computer?

Since three weeks ago, I've been the proud owner of a Cube. I am replacing my 6500/225 and am very impressed. Just one big surprise: The Cube comes without a microphone, which I assumed was standard equipment for any computer since way back. It has voice recognition, but no microphone to go with it.

— Friedemann Badow

I am a big fan of your publication and last year there was a wonderful article giving step-by-step instruction on how to convert the vintage record album collection onto a CD. Unfortunately, I am not able to find the article as I'm writing this email. I have a question concerning the procedure as mentioned in your article. I'm using an iBook SE, and as I recall, the procedure for con-



verting the albums onto a CD required an audio input which is available on the iMac but not on the iBook. (From what I can figure out, the iBook only has an audio/AV output and no audio input.) Therefore, my question is: Is there something available on the market that would allow me to input the audio using either the USB or FireWire ports? Thank you in advance for any information you might be able to provide.

— Bob Salter

✍ *The record-to-CD article was published in the November 2000 issue. For the new Macs that don't have audio-inputs, try the \$25 iMic from Griffin Technology, which converts a USB port to a standard, 1/8-inch audio-in. Visit www.griffintechology.com.*

RAMblings

After reading your February 2001 reply to Norman Robinson regarding his RAM upgrade, I thought back to my most recent RAM purchase.

After shopping prices at the suppliers listed on RamWatch.com, I decided to buy from Other World Computing (www.otherworldcomputing.com). Its price was very competitive, and it also had the most informative site that I have seen for computer peripherals. Buying

online can be tricky with no live salesperson to ask questions. But this site gave confidence.

— Dave Wallis

Maximum Upgrade

Do I really need to upgrade my Mac G4 from 64MB RAM to 128MB RAM for average use?

— Dr. Hugh Kopel

Yes, you should upgrade your RAM. Get an additional 64MB or even 128MB RAM. After the upgrade, you'll be able to use more applications at a time, and individual applications will perform at their best.

The Back Issues Are Worth the Most

I am a subscriber to *MacHome* and keep all the issues. I have seen articles that are of interest but may not be relevant to me at that moment. I'd like to have an index of the issue contents so I could find a certain article I recall seeing some time ago without canvassing through the whole pile.

I was hoping your site would have such an index as do some of the other magazines to which I subscribe. Is there one that I haven't found, and if not will you consider building and offering one?

— Bill Maxwell

Thanks for the suggestion. Look for this feature on our Website at www.machome.com, which is soon to be expanded.

Like Ongoing Updates

I don't know what is going on with *MacHome* magazine. It is amazing! I go to this college here on the Northern California coast, and we are all like, "what is going on?" The other magazines are beginning to look pretty bad in the light of *MacHome*.

— Jefree

Correction

February's Commentary, "A Teacher's Apple," was written by Joe Martha, the award-winning ScienceMan. Joe is the head of the science department at Onoway High School in Onoway, Alberta, Canada. His effective Website, with extensive information about science and technology in education, is located at www.scienceman.com. **MHJ**

write to us...

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Scannin'in PDF

If you traffic heavily in PDFs or Portable Document Format (as an increasing number of folks in the SOHO and the corporate world seem to) Microtek's ScanMaker 5700 may be just your ticket. This scanner, for \$450, features an integrated PDF engine that lets you scan documents larger than 30MB and save them as full-color PDFs

with a file size of less than 1MB. But that's not all. This scanner lets you connect via FireWire or USB while the dual purpose lid doubles as a 4" x 5" transparency adapter.

The ScanMaker 5700 also features 42-bit color for tril-

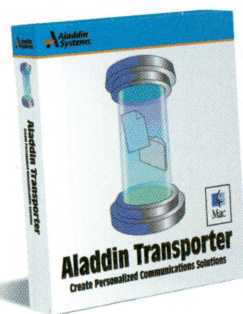
lions of colors as well as a high resolution 2,400 x 1,200 dpi optical resolution so you can scan slides and negatives and then enlarge them to print on a photo quality printer. A five-button panel lets you scan, copy, email, OCR (for scanning text), or scan to the Web. Microtek Labs, 800-654-4160, www.microtekusa.com



Moving Those Files

If you're the type who has to do multiple things to your files such as compress, email, and transfer files over the Internet, you know that sometimes you need several different applications to accomplish these disparate tasks. To automate that process, Aladdin has come out with Transporter, a utility for \$149, that lets you set up to 26 customized and automated file management and Internet-related tasks so you can accomplish everything via a simple drag and drop. Transporter lets you create what it calls customized drop boxes that perform a wide range of functions such as file compression, FTP, Web, and email transfers. The program also can display custom alert dialogs, text messages, sounds, images, and QuickTime movies. You can even send your customized drop box to others.

Aladdin Systems, 831-761-6200, www.aladdinsys.com



Mouse House

There are an abundance of mice scampering around the Mac platform these days, but one with an agreeable heft to it is the new Mouse in a Box USB/ADB for \$40. While many of the new mice out there are limited to the more recent USB Macs, this mouse also connects via the ADB port of older Macs. Mouse in a Box comes in a gray, G4 kind of color and can be used by either righties or lefties. Best of all, there's no

software to install. Just plug it in and mouse away.

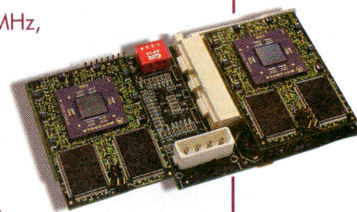
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So you want a multiprocessor Mac, do you? But alas, you still love your older PowerMac. XLR8 understands. Now you can have it all with XLR8's MACH Velocity G4 MPe in dual 350MHz, 400MHz, 450MHz, and 500MHz for your single-processor PowerMac G3, G4, or Carrier ZIF MPe Mac. This upgrade card uses XLR8's standard ZIF (zero insertion force) sockets on the motherboard. To upgrade to a multiprocessor, just open the cover, remove the heat sink, open the ZIF socket, and replace the old processor with the MACH Velocity card. Available in February, prices range from \$649 for a single processor upgrade to \$1,449 for a dual processor 500 G4 MP card. XLR8, 770-564-5682, www.xlr8.com



Let's Hear from You!

Write us a quick note and tell us what you think of this month's issue! Visit us at:

www.machome.com/aprilfeedback

Inkjet City

If you're looking for a stylish, four-color inkjet at a reasonable price, have a look at the Epson Stylus Color 880i for \$149, which comes in cool graphite and ice. Its 2,880 x 720 resolution gives you excellent image quality.

Print speeds range from 12 pages per minute in black text to 1 minute and 45 seconds for an 8" x 10" color picture.

Epson has also introduced the Stylus Color 83 (that stands for "eight cubed," as it's made specifically to complement the Cube) for \$169 (with \$30 rebate) featuring a 2,880 x 720 dpi resolution. It spits out up to 12 pages per minute in black text and 9 pages per minute in text and color graphics.

Oh, by the way, the new Epson wireless Ethernet print server is great with printers such as the Stylus Color 880i and others.

Epson, 800-463-7766, www.epson.com



Are U Ready for Sound Blaster?

So you're type who's into primo digital audio, surround sound, and customizable sound effects. You might want to check

out Creative's Sound Blaster Live! for \$149.

While the exact ship date was not confirmed as of press time, the company promises it's on its way soon. Use this sound card to connect to certain four-channel speaker systems



and to plug in MIDI, digital and analog devices such as headphones and MIDI instruments, and enhance your games, music, and Internet audio applications.

Creative Technology, 800-998-1000, www.creative.com

Web Keyboard

For those who spend half their time online (or just feel as if they do), Adesso has a keyboard for you. The IntelliMedia Pro Keyboard for \$80 gives you one-touch access to both email and the Internet. This USB split key ergonomic keyboard, complete with integrated wrist rest, lets you control CDs and AV files as well. It's got 22 hot keys for all kinds of functions.

Okay, so you don't want anything that fancy. Have a look at USB Basic, an extended keyboard for \$60 that features a removable wrist rest and full-size keyset complete with Enter and Backspace keys.

Looking for a keyboard with a touchpad? Look no further than Adesso's Tru-Form Touchpad USB for \$130, a split-key, contoured ergonomic keyboard with a touchpad in the center of the wrist support. It comes in a cool graphite color. All keyboards include two bus-powered USB ports, two delete keys, and a power switch.

Adesso, 310-645-3746, www.adessoinc.com



Hearing Voices

If you're in the market for a pocket-size voice recorder, have a look at the Olympus DS-320, which gives you some 5 hours and 20 minutes worth of voice audio. This recorder, which will be available in April for a street price of \$199, comes packed with IBM ViaVoice 8 speech recognition software and 16MB of built-in memory. It connects to your Mac via a serial or USB cable.

Olympus, 800-347-4027, www.olympus.com

Down Memory Lane

For upgrading of your Power Mac G4 or G3, Cube, or iMac, Mushkin Enhanced Memory Systems is marketing a new line of DIMMs called the Graphite DIMM family. These stylish black modules come in 64MB, 128MB, 256MB, and 512MB.

Prices range from \$35 to \$499.

Mushkin Enhanced Memory Systems

800-569-1868, www.mushkin.com

Update Mac 9.1

What with all the hoopla surrounding the impending release of Mac OS X (which goes on sale March 24 for \$129, lest we forget), no play was given to the recently released upgrade of Apple's current operating system, Mac OS 9. But indeed, for those using Mac OS 9 or 9.0.4, you can now upgrade to Mac OS 9.1. The new upgrade offers a wide range of fixes and updates. While available as a free download to all who use Mac OS 9, it otherwise costs \$99. Looking forward to upgrading to Mac OS X? Be aware that Mac OS X includes Mac OS 9.1 for running Classic applications. Apple warns that Mac OS 9.1 is not compatible with the Mac OS X Public Beta release and should not be designated as the Mac OS 9 to run Mac OS 9-compatible applications. For more information on Mac OS 9.1, see Apple's technical notes at

<http://developer.apple.com/technotes/tn/tn2010.html>

Apple, 800-538-9696, www.apple.com

The Collections Department

Running a small business often requires you to bill customers and clients and automate routine billing and invoicing operations. Enter MacInvoice 1.1, a \$40 program designed to simplify billing operations at small to mid-size companies. Among other things, it features email billing, a time module for by-the-minute billing, autofill item and service descriptions, billing reminders, reports, inventory tracking and management, expense tracking, and mailing label printing.

Praevius, 605-642-0900, www.praevius.com, www.praevius.com



Countdown to X

Of the hundreds of vendors racing to the Mac OS X operating system, here are just some of the companies committed to upgrading their products in anticipation of the March 24 release of Apple's new operating system, and demoed or announced at Macworld 2001 in San Francisco.

Beatware (650-556-7900, www.beatware.com) says eZ-Motion, its SOHO Web animation tool for \$99, is coming to Mac OS X in late March. The company's e-Picture Pro Web graphic design software for \$199 will also be available for the new OS.

Alias WaveFront (800-447-2542, www.aliaswavefront.com) gave its first demonstration of Maya 3 for Mac OS X. This high-end, \$7,500 3D graphics, animation, and effects software for film, video, broadcast, and game development is will ship in the second quarter.



ATTO Technology (716-691-1999, www.attotech.com) announced that its \$295 ExpressRAID software and complete line of host bus adapters will support Mac OS X. ExpressRAID's interface incorporates the look and feel of Aqua.

The Great Escape

If you have a USB Mac, iMac, or iBook, and have a burning desire to mirror your desktop on a TV, monitor, projector, or out to a recording device, have a look at MyView from Escape Labs. MyView, available in March for \$130, lets you present your desktop on an NTSC or PAL display or recording devices without a (VGA) video connector or video encoder. MyView captures and compresses a 640 x 480 or 800 x 600 desktop display image and routes it over the USB bus. The hardware completes the decompression and digital-to-analog conversion.

Another element of Escape's My line of USB video products is MyVideo, for \$240, which lets you capture full-frame-rate video (30 frames per second) as well as play the video back out to recording or display devices. MyCapture II, for \$130, lets iMac and iBook owners capture full-frame-rate video. Both are scheduled to ship in late February.

Escape Labs
925-249-6500
www.escapelabs.com

A CD-RW For Your PB

Are you a road warrior who needs to quickly store your data on CDs? SmartDisk has introduced the VST FireWire CD-RW drive for \$430, a portable unit specifically designed for use with your PowerBook or iBook. Power comes from the computer's FireWire bus via a standard two-foot cable. It's compact dimensions (approximately 5.6" x 7" x 1") is ideal for those in cramped workspaces. VST Technologies, 978-635-8200, www.vsttech.com



Countdown to X (continued)



Dantz Development (800-225-4880, www.dantz.com) demoed pre-release versions of Retrospect Backup and Retrospect Client, its backup software for Mac OS X. The carbonized versions sport an Aqua interface and run in Mac OS X native mode. There's no official ship date yet.

MYOB (800-322-6962, www.myob.com/us) previewed an OS X version of AccountEdge, its new small business management software for \$249.



Toon Boom Technologies

(www.toonboom.com) gave an advance preview of Toon Boom Studio 1.0, a \$500 2D character animation program for Web designers, tooled for Mac OS X. Look for it in the

second quarter.

QBeo (800-689-0639, www.qbeo.com) announced that PhotoGenetics 2.0 (\$30) and VideoGenetics 1.0 (\$80) digital image and video enhancement software is available for Mac OS X.

Maxon Computer (877-226-4628, www.maxon.net) announced it has optimized its 3D software applications — CINEMA 4D XL 6.3 (\$1,695) and BodyPaint 3D 6 (\$595) — for Mac OS X. CINEMA 4D is a 3D modeling, animation, and rendering package, while BodyPaint 3D is an advanced painting application for creating detailed textures.

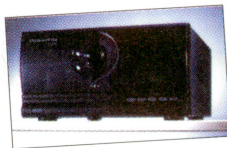
ArKaos (www.arkaos.net) announced that its ArKaos VJ 2.0 and ArKaos VMP 2.0 video software is ready for Mac OS X.



ArKaos VMP, a consumer authoring tool for \$29, lets you create graphical effect videos for digital music collections,

Short Takes!

PowerFile (www.dvdchanger.com) showed off its PowerFile C200 DVD/CD Jukebox for \$1,799,



which lets you store, manage, and access up to 200

media discs including DVD-ROMs, CD-ROMs, DVD movies, and audio CDs. Also use it to manage assets over a network.

TeraGlobal Communications

(858-404-5500, www.teraglobal.com) unveiled TeraMedia 2.5, its full-screen 30-frame-per-second video, voice, and data collaboration software. Use it on your Mac network to see, hear, and speak with others individually or in groups; view presentations; and collaborate over documents, sound, video, and print media.

Archway Systems (714-374-0440, www.archway-systems.com) released VersaCAD Mac 2000, a computer-aided-design (CAD) package that includes applications for architectural,

mechanical, GIS (Geographic Information Systems, for the map-makers among us), document management, and more for \$895.

Keyspan (510-222-0131, www.keyspace.com) let loose its new USB 4-Port Serial Adapter for \$149, which lets you connect four serial devices to a single USB port with each port giving you data rates of up to 960 Kbps.

Virtual Ink (877-846-3721, www.mimio.com) introduced version 1.5 of its mimio software for free, if you own the \$599 digital whiteboard. Available in March, it now integrates digital whiteboard information with QuickTime and iMovie for editing and viewing multimedia.

CS-Odesa (www.cs-odesa.com) released version 1.6 of ConceptDraw, its flow charting and business diagram software for the Mac and Mac OS X for \$125. Check out new drawing modes, interface improvements, and Open and Save navigation scheme.

parties, presentations, and electronic art installations VJ, for \$291, is a professional authoring tool that lets you work with your own still image and movie files. Both come in professional and free versions.

Quest Software, which acquired Active Concepts (www.activeconcepts.com, 800-551-5282), demoed a beta Mac OS X version of Funnel Web 4.02, the Website traffic analysis software for \$399 (box) or \$349 (download).

Canon's Hi8

In the market for an affordable camcorder? Have a look at Canon's Hi8 camcorder line which includes: the ES60 for \$329; the ES65, available in April for 349; the ES420V, available in April for \$399; and the ES8200V, available in May, for \$449. All feature a 22x optical zoom lens and a 700x digital zoom, six program auto exposure functions, and digital special effects in record and playback modes.

Canon, 800-652-2666

www.usa.canon.com



By Zack Stern

iMovie Survival Guide

Discover the Tools and Tips
for iMovie Success

How can you produce great videos without a trip to UCLA? Follow along as we give the details and tips on creating videos with iMovie 2.

Import

Once you've shot some footage, plug your video camera into your Mac with a 4-pin to 6-pin FireWire cable, launch iMovie, and create a new movie. Verify that the aqua slider in the play window is on the left, corresponding to the DV icon.

Without any additional cables, iMovie can control a video camera. Use the navigation buttons to cue the tape to each shot, and push Import. At the end of the important segment, push Import again to stop capturing. iMovie records the video to the

hard drive once you push Import, so if you fast-forward, it'll abort the capture. Capture more footage from each shot than you plan to use — you'll make the precise cuts when you edit. iMovie knows when each shot begins, so the easiest way to import all of the footage is to let the program divide each clip automatically. Use this feature sparingly if you have captured video that you don't plan to keep.

As you capture each shot, it appears in the Clips window. Click once on the label (or double-click

the clip) to edit each name. While naming clips won't make any visible difference on the final video, it may help you stay organized.

Edit

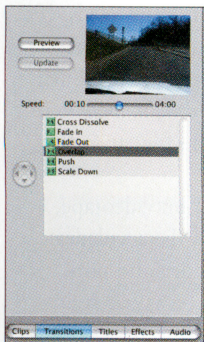
The bulk of your iMovie work is editing. You'll change the order of clips, trim footage, and add titles and special effects.

To begin editing, drag the clips into order in the clip viewer, and then click the timeline viewer. Select the first clip, and start cutting. Watch the clip in the monitor window, and decide about where the shot should begin and end. Drag your mouse just below the play bar to highlight part of the shot. To precisely control when the shot begins and ends, click once on a triangle, and use the arrow keys to position it (try shift-arrow to move ten frames at a time). The clip duration is reported on the timeline viewer. Remember that your video times are based on frames, so 02:15 is two seconds and fifteen frames, or 2.5 seconds. After making the perfect clip selection, choose Crop from the Edit menu.

You can also edit by erasing footage that you don't want. Highlight the portion of a clip to delete, and choose Cut from the Edit menu. Another way to edit is by splitting a clip. Position the playhead at the point where you want to separate a clip. Choose Split Video Clip at Playhead from the Edit menu to divide the shot. Now you can move one of the segments to another part of the video, or remove it entirely by pushing delete.

Transitions

Once the clips are in order and the right length, move on to transitions. Click the Transitions button to choose dissolves, fades, and other segues between shots. Use transitions sparingly; they can make your video more interesting or cover up jump-cuts, which are jarring edits. However, too many transitions make a video look unprofessional.



Pick a transition, set its duration with the Speed slider (from ten frames to four seconds), and preview it. If it's what you need, place the transition by dragging the preview window into the timeline. You can't view your transition immediately, because it's being drawn by your Mac. Watch the small, red render bar to determine when it'll be ready for viewing.

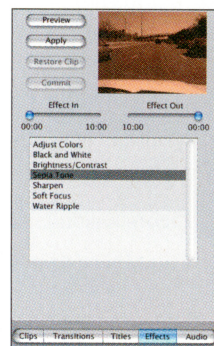
Titles

Too many titles can bog down a production. Consider placing one at the beginning or end of the video for credits. Click the Titles button, and choose one of the styles. Enter your own text instead of the placeholder. If you want the title to be inserted over a black background, check Over Black. If the title will be inserted over moving video, leave this box blank. Finally, if you're going to put the video back on tape, make sure that the QT Margins box is also blank. (This step formats the titles to fit on a television monitor.) To add the title to the video, drag the preview window into the timeline.

Special Effects

Effects can give a video extra flair. Again, use them conservatively because their impact decreases with repetition. Click the Effects button, select a clip, and choose from the color and visual alterations. To apply an effect to only part of a shot, split the clip first.

Each option has its own set of parameters. Try different combinations, and gauge the results with the Preview window. For an effect that isn't in that pane, click a clip, and adjust its speed by moving the Faster/Slower slider in the timeline viewer. A final, hidden effect reverses the direction of a clip. Select the clip in the timeline viewer, and choose Reverse Clip Direction from the Advanced menu.



Sound

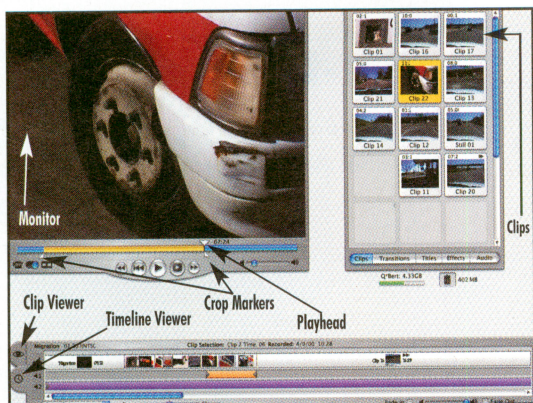
Audio tracks are the most overlooked

Pre-Production

Once you have an idea — you're on your own for that step — start planning. Before you pick up your camcorder, you should make a plan. Even if you're shooting a live event, a little preparation carries through the entire process because, once you're editing in iMovie, it's hard to get more footage. Imagine the finished video, and write down a script that includes all of the shots. If you're collaborating with other people, a storyboard, which is a drawing for how each shot looks, can help convey information among the team. Take this information with when you shoot, and cross off each shot as you record it. Remember to get extra footage, too; unanticipated shots may play an important part in your video.



part of good video. Video tells the story. Audio conveys emotion. To improve the video, locate some background music to complement the edits. iMovie can read MP3s, AIFF files, and CDs. If the video has critical dialogue, pick a song that is unobtrusive. To add a song, position the playbar where the music should begin. For AIFF and MP3 files, select Import File, and pick a track. To add music from a CD, click the Audio button. Select a track, and push Record Music to capture the song as it plays. For a quicker addition, just drag the track to the timeline. To edit the track, click it once, and use the Split Audio Clip at Playhead option like you did with the split video command. Erase the part that you don't need. If you own the CD that the copyrighted music comes from, don't worry about copyright issues unless you charge money for your video. Sound effects and narration can also help your production. In the Audio window, drag one of the sound effects



iMovie has some jargon to overcome. Once you see which terms correspond to the parts of the application, production becomes easier.

into the timeline to place it. If you have a microphone installed, click the Record Voice button to add narration. The voice track will be added where the playhead starts, but it can be repositioned and edited after recording.

Movies and TV shows often use the end of one shot to introduce the sounds of the next. For example, we might hear rainfall before seeing the downpour. To accomplish this trick in iMovie, select the clip

with the significant audio in the timeline. Choose Extract Audio from the Advanced menu. Select the audio track and pick Unlock Audio Clip from the Advanced menu. Select just the video track, highlight part of the beginning in the monitor window, and choose Cut. The video clip should slide to the left, but the audio clip will stay where it is. To match it up, zoom in, and position the right side of the audio track in line with the right side of the video.

The final, crucial audio step is mixing. Each layer of your audio needs to have an appropriate volume so it's audible, but not overpowering. Select each clip (or shift-click to highlight multiple shots), and adjust the audio slider at the bottom of the timeline viewer. To mark when the audio should fade, double-click the clip. Also adjust the music and sound effects to match the levels of

the video track. Music should be audible, but shouldn't be loud enough to clutter the project. Experiment to find levels that work.

Oops

If you make a mistake in iMovie, first try undo (up to ten times) to correct the error. Or select a clip, and choose Restore Clip Media from the Advanced menu. However, restoring a clip will expand it to what had originally been captured, and if sound effects are already timed to the video, you'll have to reposition the audio files.

Save Your Work

Now that you've finished constructing a video, export it. Not to Cannes, but to a videotape or a QuickTime movie. To copy the iMovie to your video camera, load a tape into the camcorder and hit record-pause mode (check its manual

for help). Select Export Movie from the File menu, and pick Camera from the pull-down menu. If using a new tape, add 10 seconds of black to the beginning and 30 seconds to the end. This way, the beginning of the video will make it onto the tape, and you won't have to leap for the VCR to stop it at the end. To export as a file, choose QuickTime from the pull-down menu, and pick the format that best suits your needs. If you have a Super-Drive DVD-RAM, save your iMovie to

Editing Tips

Creating video is an additive process — if you're not careful about how much footage you use, productions can grow long. The most important tip is to think of the story. Only add shots that directly explain or enhance the story. And hold those shots for just long enough to convey their action. Apply the same mindset to special effects, and your videos will be effective and succinct.

Production Values

Whenever possible, follow these tips to create better video.

Sound Advice: Use a microphone and monitor the audio with headphones while shooting. A cheap mic positioned by a sound source will work better than a microphone mounted on the camcorder.

Be Stable: Use a tripod for solid video — the difference will surprise you. Avoid pans and zooms unless they help tell the story.

Light Matters: While using your own lights can be more trouble than it's worth, be aware of the light and shadows in

your shots. Keep light sources at your back or side for best results.

Shoot to Edit: Make sure that iMovie gets its workout. Shoot footage before and after what you plan to use; when reviewing the tape, the extra footage may prove invaluable. Generally hold shots for ten or more seconds to make sure that there's enough footage to work with.

Talking Heads: Use narration sparingly. Don't repeat what is presented visually; narrate only if the audio conveys more information about the story.



a full-quality QuickTime file, and import it in iDVD.

Send movies in email, on videotape, or on DVDs, and watch the accolades arrive. With a little practice and popcorn, your iMovies will be as entertaining as any other video. **MHJ**

Taking the DV Plunge

What You Need to Compare When Buying a Digital Video Camera



Why Go Digital?

Video started off as an analog medium — analog images are recorded as waves.

Each time you play a video tape, the waves are read slightly differently.

When making copies, these differences are recorded, degrading the quality of the duplicate. But digital video is recorded with numeric values. So when a digital tape is played, it always displays the same information. Also, since your computer understands digital signals, you don't need extra hardware to convert analog footage to a digital signal. When you're ready to take the digital plunge, here are the features to look for.

FireWire

The most important feature to look for is a FireWire output (also called IEEE 1394 or iLink). With FireWire, you can plug your camcorder into your Mac for digital editing. The good news is that nearly every new digital video camera comes with a FireWire port.

Image Stabilizer

When you shoot handheld video, you're going to shake the camcorder. These movements can be eliminated if you use a tripod, but if you can't always carry a tripod, look for a stabilizer. An image stabilizer senses when you make tiny movements and corrects them. A digital stabilizer analyzes your picture as you capture it and adjusts for any shaking. An optical stabilizer uses a moving lens to correct the vibrations before the image is captured; this method creates smoother results than a digital stabilizer. Digital

stabilizers are more common than optical ones, but going with the optical option may be worthwhile.

By Zack Stern

Viewfinders and Screens

In addition to a viewfinder (or sometimes instead of one), camcorders come with a flip-out LCD screen. Instead of feeling trapped inside a viewfinder, you can maintain contact with your subjects and manage your shots with an LCD. If you're going to shoot outside a lot, look for a model with both a viewfinder and screen, because bright days makes an LCD difficult to see.

Progressive Scan

Video is said to be shot at 30 frames per second, but this isn't exactly true. The term frame is borrowed from film, where the entire image is projected at one time. Video works with fields, which are half of each frame, and two fields combine in your brain to make a single frame. So, video is really shot at 60-fields-per-second. When you capture your footage on your computer, the fields aren't combined, so while your computer is capable of displaying a frame, it still uses two fields to create a frame. If you want to extract a still image from your video, it will have a lower resolution than if it were captured as a frame. Progressive scan camcorders are able to capture a full frame, so if you want to view clear stills, look for this feature.

Analog Input

If you have old videos, an analog input will let you plug your VCR or old camcorder into your new video camera. You can record onto a digital format to archive your work or prepare it for iMovie.

Tape Formats

Mini DV and Digital8 offer similar recording quality. Digital8 uses 8mm videotapes that are about the size of an audio cassette. A bonus is that any old 8mm videos you've shot will work in a Digital8 camcorder. Mini DV tapes, available in most electronics stores, are about the size of a micro-cassette. Both cost between \$5 and \$15. **MHJ**

Digital Camera Shootout

By Sandy Brundage

How Many MacHomies Does It Take to Snap a Picture?

It's unnerving to leap into the world of digital photography if you're used to Polaroids or 35mm. Luckily, we cornered some bright yet digitally inexperienced volunteers whose brave explorations can help you choose the right starter camera. Kevin, Christina, Kathy, and Christine were handed four cameras — the Olympus D-360L, the Nikon CoolPix 880, the Kodak DC 3400, and the Canon PowerShot S100 — and turned loose on the *MacHome* office with no other instructions besides, “Figure out how to take a picture.” Did they shoot straight from the box?

The Adventure Begins

Canon PowerShot S100

Kevin found the controls confusing. “I finally moved some switch that did something and found that I could then take a picture.”

Christina declared this her favorite. “I like the size — the way it looks. It's compact, but the screen looks sharper than the other cameras. I had no problems turning it on. It was easy to flip through functions on the menu.”



Kathy said, “Not user-friendly.”

Christine said, “So tiny! I like the way it looks. It doesn't feel like you'll break it by playing with it. And you can just pop it in your purse. The display is much sharper than the others.” She added that the Canon PowerShot S100 did take a little longer to figure out how to take a picture and scan through saved images, though.

Kodak DC 3400

Kevin proclaimed the Kodak DC 3400 the easiest. “No weird buttons, you know what everything means. Really straightforward.”

Christina had such a good time with the easy control

navigation on this camera that she got creative, taking advantage of the black and white option and zoom.



Kathy thought this camera would be pretty straightforward as long as you had a manual on hand.

Christine said, "Not my favorite packaging — too bulky. But it gets high marks for intuitiveness."

Nikon CoolPix 880

Kevin successfully pointed-and-clicked with the Nikon CoolPix 880, but he felt like he needed the manual to understand the buttons.

Christina found this camera awkward, because of the square shape. "It needs to be rectangular," she said. "It's

cumbersome to hold like this." The buttons left her puzzled, too.

Kathy said, "I like this one; it tells you

things right on the screen.

Good indicators."

Christine thought the Nikon CoolPix 880 was handy and convenient but, "as far as intuitive, not really."

Olympus D-360L

Kevin thought this felt like a toy and worried about breaking the sliding panel. He took a picture and said, "I don't know what any of the icons mean, but it flashed, so it probably worked."

Christina had a hard time figuring out the buttons, too. "Not that it wouldn't take good photos," she said, "but I don't like the design."

Kathy thought it didn't have enough buttons, but she really liked the scroll-down screen that let her look at saved



Digital Magician

Tim Petros (tim@gyrovr.com) shoots for a living. With 20 years of experience as a commercial photographer and QTVR specialist with clients that include "The X-Files," the Discovery Channel, and Apple, he knows how to get the most out of his Macs. "I have a Blue and White G3 with 256MB of RAM and a 21-inch monitor, a G3 PowerBook with over 300MB of RAM, and a couple of 8500s, each with over 150MB of RAM," he said. Petros recently let slip a few secrets about working magic with digital photography and QuickTime VR:

What digital camera do you use, and why?

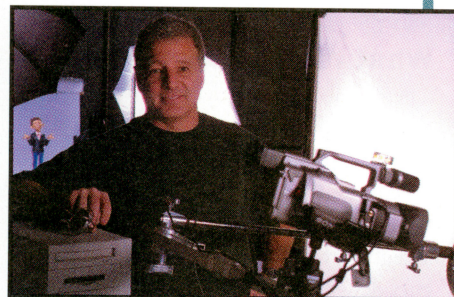
I use a digital camera to film objects. It is important to capture images for object movies digitally, in order to keep each frame aligned with the previous frame. Depending on the job, I will use a digital video camera, like the Sony TRV900, or a digital still camera, like a Kodak DCS315. Consistency is the key to shooting objects. Most panoramas I shoot on film. I like the photographic quality of film.

How would you recommend someone learn to use QTVR?

If you are starting from scratch, you may like to start at Apple's Web site (www.apple.com/quicktime/overview/qtvr.html) or www.apple.com/quicktime/products/tutorials/immersive.html.

Apple and VR Toolbox are the main sources for QTVR authoring software (www.vrtoolbox.com).

Then branch out to other third party Websites to learn about necessary hardware, shooting techniques, and samples. Searching for QuickTime VR or QTVR will



produce dozens of good leads.

There is also "The QuickTime VR Book," by Susan A. Kitchens, Peachpit Press.

What tips do you have for someone who wants to get better at QTVR?

Improve your photographic skills. The sooner you recognize QTVR as a photographer's medium, the sooner you will get better. Too many people think that the magic is wrapped up in software or unusual hardware. The same elements that go into an excellent still shot go into an excellent QTVR movie.

What are the challenges you face in constructing a QTVR piece?

The challenge to shooting objects is most often support, or rigging the object to rotate at regular intervals. Unless you want to put up a sign that says "I only photograph things with a flat bottom," you have to be ready for anything. Floral clay, fishing line, staple guns, and toupee tape are all fair game, as long as they work.

One of the greatest challenges I have ever had shooting a QTVR object was a prop from "The X-Files": a rubber pig leg about 30 inches long. Wires, staples, plus about 18 hours of Photoshop, and it looked great — for a pig leg.



images easily. Christine accidentally took a picture of her nose. She

liked the smaller size of the Nikon better but thought the Olympus D-360L made more sense after she figured out how to scan captured images.

What We Discovered

There really wasn't a clear winner in the shootout. The Kodak DC 3400 seemed to have the most obvious controls, but it was bigger than the other cameras. The Canon Powershot S100, although not as straightforward as the Kodak, had a compact design that encouraged our volunteers to take the time to figure out the buttons. They also liked the sharpness of its LCD screen, a quality that's hard to judge without taking a camera through a trial run. Overall, we learned that looks and feel are as important to choosing a camera as ease-of-use, so make sure to drop by a camera store to get some hands-on time with your top choices before making a final decision.

What Do Those Numbers Mean?

Megapixel: This tells you the number of millions of dots that make up the image on the screen. The more dots,

the clearer the image should be. Digital cameras usually have anywhere from 1 megapixel to 3.3 megapixels. Keep in mind, though, that digital cameras have to squeeze a large amount of image data into a small amount of memory for storage. This is known as compression, and it can also significantly affect image quality because it involves discarding repetitious bits of data in the picture — if the camera can see that the entire sky is blue, for example, then it doesn't need to record that information for each sky pixel. It only needs to remember where the blue starts and stops. These shortcuts can make the image less sharp.

Digital Zoom: To zoom in digitally, the camera's electronic brain estimates what the magnified subject would look like, then shows its best guess. The image looks larger because the camera added pixels, without any physical lens movement involved. However, gaps in the camera's guesswork can lead to blocky images.

Optical Zoom: This works like the lens on a 35mm camera — a lens physically moves within the digital camera to magnify (get closer to) the subject. This avoids the clarity-loss problems possible with digital zoom.

Resolution: The number of pixels the

camera can capture in one image, indicated as width x height. 640 x 480 is a good resolution for an image that will go on a Website, or for a 4x6 print. For an 8 x 10 print, you'll need a resolution like 1,280 x 960. Why use low resolutions? Because higher levels mean more pixels, so more memory is eaten up by each image. Also keep in mind that a digital camera's **resolution** doesn't work quite the same way as a monitor's, thanks to the effects of image compression.

Storage Media: What keeps your image from being lost after you take it. Depending on image quality and resolution, 8MB of memory can store anywhere from 2 to 24 images. The two types of removable storage featured in these cameras are CompactFlash and SmartMedia cards. A CompactFlash card can store up to 340MB, while SmartMedia tops out at 128MB and is physically smaller. Either way, expect to pay up to \$2 per MB when shopping for additional memory.

Flash modes: Since you can't switch films to adjust for lighting conditions the way you can with an "old-fashioned" camera, flash modes are important. Digital cameras adjust lighting, shutter speed, and aperture (size of the lens opening) based on these modes. **MHJ**

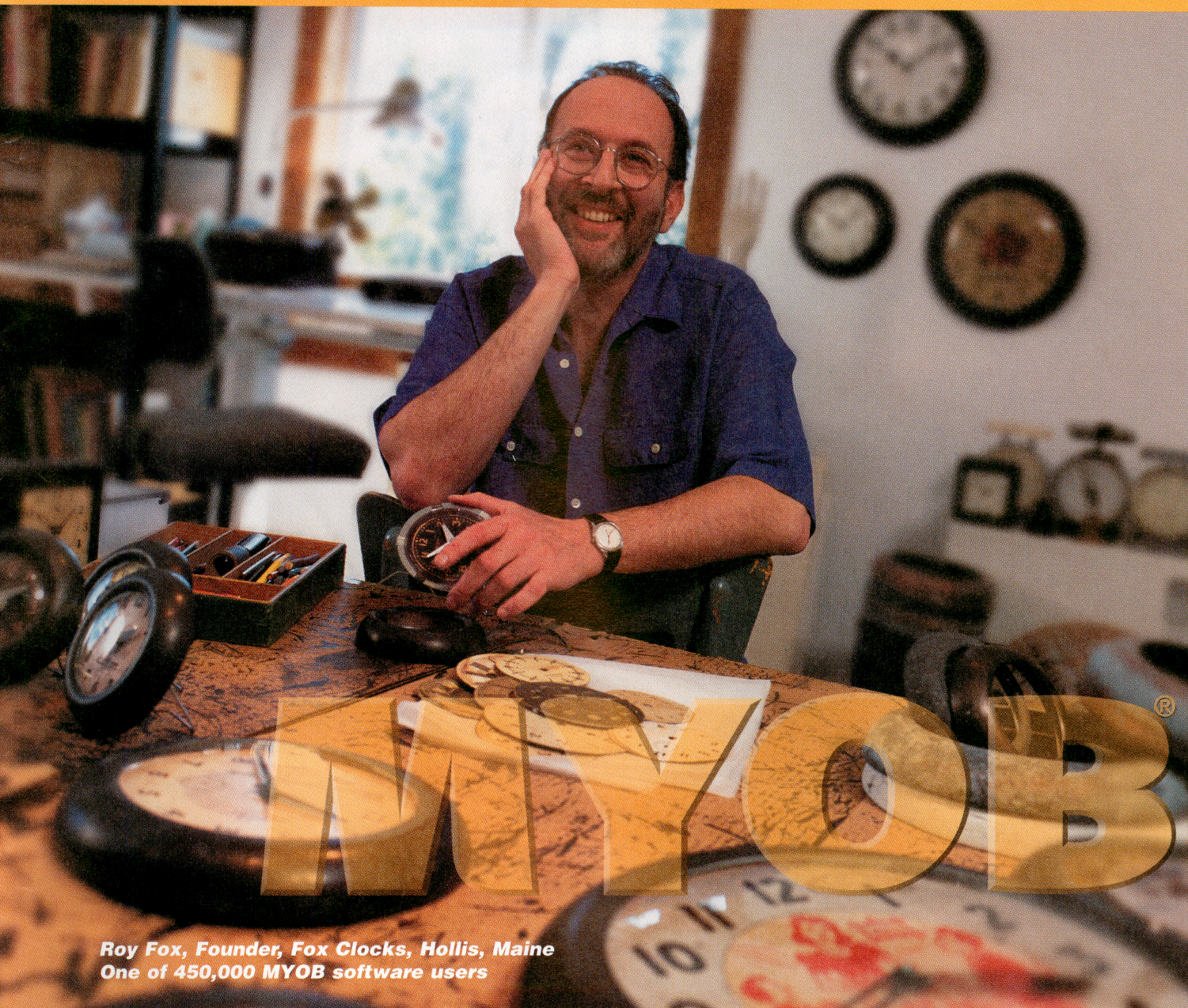
Just the Facts

	Canon PowerShot S100	Kodak DC 3400	Nikon CoolPix 880	Olympus D-360L
Suggested Retail Price	\$599	\$499	\$799	\$299
Megapixels	2.1	2	3.34	1.3
Optical Zoom	2x	2x	2.5x	No
Digital Zoom	4x	3x	4x	2x
Maximum Resolution	1,600 x 1,200	1,760 x 1,168	2,048 x 1,536	1,280 x 960
Power Source	Lithium rechargeable battery with recharger	4 AA batteries	Rechargeable lithium battery	4 AA batteries
Storage Media	CompactFlash	CompactFlash	CompactFlash	SmartMedia
Flash Modes	5	4	5	6
USB Cable Included	Yes	Yes	Yes	No
Serial Cable Included	No	Yes	No	Yes; Mac converter not included
Weight	6.7 oz.	12.0 oz.	9.7 oz.	8.3 oz.
Dimensions	3.4 x 2.2 x 1.1"	5.2 x 2.1 x 3.0"	3.9 x 3.0 x 2.1"	5 x 2.6 x 1.9"

DESIGNED FOR THE WAY YOU WORK

I'd rather create clocks than invoices.

If I wanted to keep books all day, I'd have been an accountant.



Roy Fox, Founder, Fox Clocks, Hollis, Maine
One of 450,000 MYOB software users

MYOB

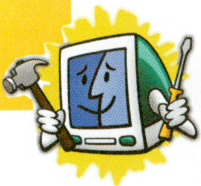
**Small Business.
Smart Solutions.SM**

800.322.MYOB
myob.com/us

MYOB software is the simplest, most powerful, most complete solution for managing my company on the Mac, from the day to day to the bottom line.

Antique frames. Quartz movements. That's my business.

MYOB software works for me.

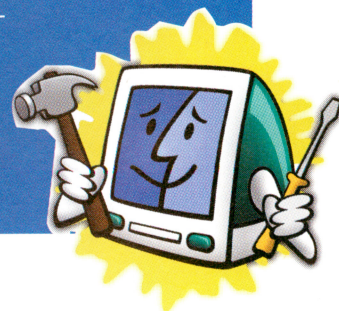


The Mac Workshop

By Zack Stern

What You'll Need

1. Speakers and a microphone
2. A video camera
3. Videoconferencing software
4. Internet connection



Videophone Home

Combine a Video Camera and Computer for Long-Distance Communication

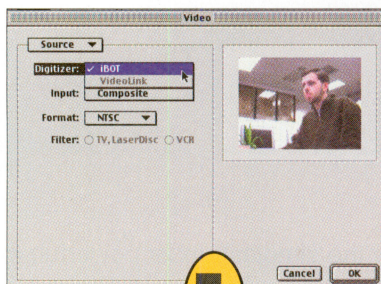
After much searching, we have yet to find the perfect videoconferencing application. At least there are many options. Some applications are oriented to making new friends, others are for finding people you already know. Our most positive experiences occurred with VideoLink Pro, an application designed to communicate with current acquaintances. You can apply these steps to other applications, or you can follow along with VideoLink to make a video call across the world.



Configure

Before launching VideoLink Pro, install and connect your video camera and microphone. We used Orange Micro's iBot to get going. Launch VideoLink, and select Preferences from the Edit menu. Click the pull-down menu, and choose Audio/Video Options. For the audio input device, select your microphone.

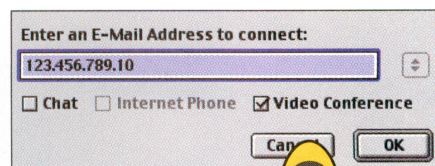
Close that window, and open Camera Settings from the Video menu. Click the Source option, and verify that your camera is selected in the Digitizer menu. You're ready to start a connection.



Dial a Friend

If you and a friend have VideoLink installed, you can place a call. Choose New Connection in the File menu. Uncheck the Internet Phone option, and click Video Conference. Enter your friend's email or IP address in the field. (Your IP address is listed in the TCP/IP Control Panel.) Click OK.

If your friend has VideoLink or the default Call Listening Server open, they can accept the call. Once the call is approved, a new communication window opens.



Resources

Videoconferencing Applications

VideoLink Pro
Smith Micro
\$60
www.smithmicro.com

Clear Phone
Internet Communication Technologies
\$70
www.clearphone.com

iVisit
Eyematic Interfaces
Free
www.ivisit.com

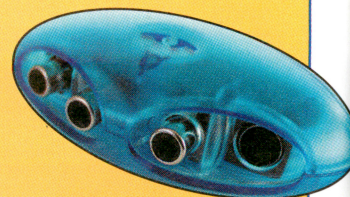
iSpQ VideoChat
NanoCom
\$40
www.ispq.com

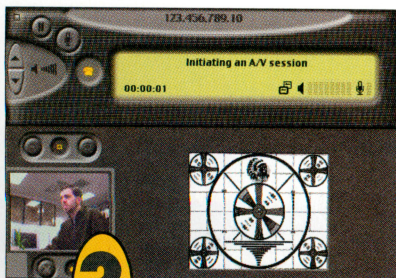
Webcams

iBot
Orange Micro
\$150
www.orangemicro.com

KritterDIGITAL
iRez
\$200
www.irez.com

KritterUSB
iRez
\$70
www.irez.com





3

Manage the Call

The large window will display the incoming video. Click one of the

three rectangular buttons to set its size. Push the camcorder button below the small window, and you can see feedback from your own camera.

Communication happens a few ways. Pull the bottom tab down to access the text-chat area. Type messages here as you would in any instant messaging program. Of course, your image can convey a lot of information — smile! The easiest part of videoconferencing is using your voice. Just like a phone, say something, and your friend will hear it through their speakers. Audio and video may be slightly delayed when transmitted, so speak slowly and clearly.

Videophone Tips

Connection speed has the greatest effect on your results. A dial-up modem makes for choppy video and long delays. With a high-speed connection, you still won't see the same quality as you do in most QuickTime movies, but you'll get around fifteen frames-per-second.

Any conferencing application has room for customization. Experiment with the settings to tweak results. Look for compression, frame size, and frame rate controls. All of these adjustments trade file size for quality.

Increasing the compression will send murkier video, but it will be smaller. Hence, the frame rate can be increased. But greater frame rates and sizes require more bandwidth. Decrease these settings if you're on a slow connection.

Did You Know...

Beyond the practical concept of using a video camera to conference with anyone on the planet, you can visit tons of novelty Webcams with little purpose. There's no need for a camera — just a browser. Try the Lamb Cam (www.newzealand-escape.com/lambcam.htm) or Antarctica's Davis Station Webcam

(www.aad.gov.au/stations/davis/video.asp). For these and 26,000 other Webcam listings, visit WebcamSearch.com (www.webcamsearch.com).

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Create Playlists with iTunes

One of iTunes' greatest strengths is its ability to organize and sort your MP3 audio collection. It's unlikely you'll want to listen to your entire library of music in one sitting, however. You may only want to hear the latest chart toppers, for example, or perhaps you'd like to make a long mix for an upcoming party. You might even want to create a list of love songs for a special evening you have planned. iTunes is sensitive to these needs, allowing you to create multiple playlists to suit your mood.



listing. Browse through your audio collection until you find a song you want to add to your new playlist. Click on the song, hold down the mouse button, and then simply drag it to your new playlist at the left. Continue to add as many songs as you wish. Once you're finished, click on the playlist to view the tracks you've added. You can rearrange the songs by dragging and dropping them in any order you see fit. To delete an item, click on it once, and press delete on your keyboard.

You can create as many playlists as you like. You can listen to your lists sequentially, or if you prefer, you can select Shuffle from the Control menu to play the tracks randomly. You can also click the minimize square in the top right of the window to reduce the iTunes interface to a small, unobtrusive MP3 controller.

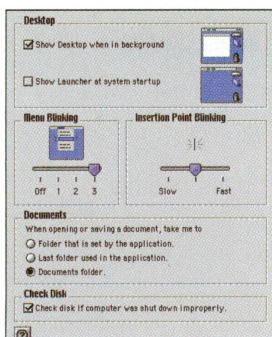
The Documents Folder

Many users are familiar with the Documents folder, a familiar, yet under-used feature of Mac OS 9. In theory, all user-created documents are to be stored within this folder to encourage better organization. This hasn't happened. Many

users still prefer to store their personal files and folders just about anywhere they please.

Mac OS X continues the preoccupation with the Documents folder. To prepare for Mac OS X, you can configure Mac OS 9 to automatically store all new user-created files in the Document folder.

Open the General Controls control panel. Towards the bottom, you will find a section titled Documents. Three options are provided. You can either store documents in the folder that is set by the application, the last folder used in the application, or the Documents folder. Click the radio button next to the final listing to make the change. Although it can be a bit disconcerting at first, you'll soon learn to appreciate its convenience of saving files in the same folder.



Finding Help

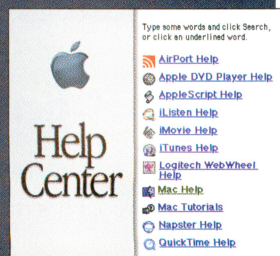
It's happened to the best of us.

We're sailing along smoothly with our Macs, when suddenly something bewildering happens. Where do you turn for an explanation or help? So long as your Macintosh is still fully operational, you should consult the Mac OS Help Center. Go to the Finder and select Help Center from the Help menu. You're immediately presented with a listing

of available topics and a handy search field.

Let's say you want to find out how you

can help prevent your Macintosh from crashing. Go to the Help Center and click on the Mac Help listing. Now, in the search field at the top, enter the word "crash" and press return. The first article listed is "If your computer crashes, freezes, or won't start up." You need only click on this entry to learn more about systems crashes and possible solutions. Still confused? Many topics offer a quick-link to Apple's Tech Info Library on the Web.



Did you know...

There are more than **18,000 products** for **your Macintosh?** Find them all at Apple's Macintosh Products Guide Website:

<http://guide.apple.com/usindex.html>

Mac OS Update Watch

Mac OS 9.1 Update

Apple's long awaited update to Mac OS 9 has finally arrived. The software improves the stability of the Mac OS and rolls in expanded support for iTools and Multiple Users. Sherlock 2 now features an entertainment channel, and the Finder has gained a new Windows menu to ease navigation through crowded desktops. The update requires Mac OS 9 and can be downloaded from www.info.apple.com/support/macos9/9.1download.html (70MB or 15 segments of 4.6MB). The update is also available on CD for \$19.95; visit www.apple.com/macos/ for more information.

Power Macintosh G4 AGP Update

This update eliminates several issues affecting recent Power Macintosh G4 systems with Gigabit Ethernet, circumventing wake-from-sleep problems and enhancing the reliability of the Rage 128 Pro graphics card. Wondering if your system is affected? The problem

strikes 400MHz single processor, and 450MHz and 500MHz dual processor Power Macintosh G4 systems. These systems were the first G4s to ship with Apple's Pro Keyboard and Pro Mouse. You can find the update at <http://asu.info.apple.com/swupdates.nsf/artnum/n11903> (442k).

DVD-ROM Firmware 1.0

This update improves the performance of audio extraction from the DVD-ROM drives of Power Macintosh G4 Cube, iMac DV+, and iMac DV SE systems. If you regularly use Apple's iTunes to rip audio tracks from your favorite CDs, you'll want to install this update. It can be downloaded from <http://asu.info.apple.com/swupdates.nsf/artnum/n11914> (796k).

Disk First Aid 8.6

Apple's latest revision of Disk First Aid includes the capacity to fix an obscure bug found on the hard drives of many Macintosh systems shipping with Mac OS 9.0.4. Download, install and run Disk First Aid 8.6 to clear up the issue before it becomes a problem. The software can be found at <http://asu.info.apple.com/swupdates.nsf/artnum/n11889> (510k).

Finder Shortcuts

The Finder is chock full of shortcuts. Hold down the option key as you double-click a folder. This automatically closes the previous folder window as the new one opens. For a quick clean-up, hold down the option key as you close a window. This action automatically closes all open windows. You can also hold down the command key and click on the title of any window. This brings up a hierarchical location listing, allowing you to quickly select any higher-level folder.

«Listen Different»

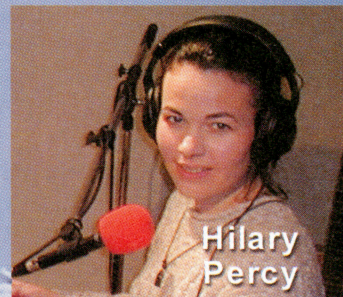
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Videoconferencing

Communicating in a Whole New Medium

Videoconferencing plays an active role in business communication throughout the world. Bridging the gap between conference calls and interpersonal communications, videoconferencing also saves companies the time and money associated with sending executives to meetings on transcontinental flights.

Historically, the cost of videoconferencing has been beyond the range of consumers but relatively affordable to corporations. Fortunately, the prevalence of new and inexpensive technology in today's marketplace has brought high-tech videoconferencing within the reach of almost any small business or telecommuter.

In years past, videoconferences involved expensive cameras, satellite hookups, and specialized whiteboards that allowed people to read what others wrote halfway around the world. Despite their efforts to save money

with videoconferencing, businesses continued to part with large sums of money associated with videocon-

ference production.

With the advent of new technologies, the cost of videoconferencing has evaporated. USB and FireWire cameras, the Internet, high-bandwidth DSL and cable connections, and free communications software now transmit the same data that was once beamed to satellites, faxed, and spoken over telephone lines to distant continents.

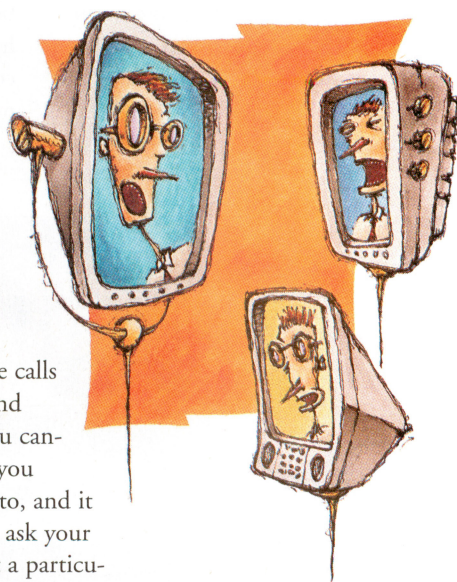
Expand Your Opportunities

Among the best reasons to integrate videoconferencing into your professional communications arsenal are trust, flexibility, and cost savings. You've likely spent a great deal of time and effort developing professional relationships with your clients. Think of the impact that videoconferencing might have if your clients could see you and your employees face to face (in a manner of speaking). Your ability to exchange ideas, express concerns, and communicate detailed information would improve dramatically. Furthermore, your client

would see the nuances inherent in visual communications, such as the attention you give to their comments.

Conference calls are tedious and inflexible. You cannot see who you are speaking to, and it is difficult to ask your client look at a particular chart or notice a product's unique texture, for instance. With videoconferencing, you can more easily express your ideas, give examples, and share particularities depending on the manner in which you produce the conference.

Of course, cost savings are paramount to any small business. Taking the time to travel by car, plane, or train can eat into profits and take large blocks of time out of your schedule. By implementing a videoconference schedule with clients, fewer trips may be necessary to review and exchange ideas. All the while, you've added to the number of hours you are available to attend to other important tasks and clients — the annual savings could be significant.



Be mindful that your client, or anyone with whom you decide to conference, may not be technically adept. Ask yourself if there is a benefit in spending the time to coordinate with your client on such an endeavor. It may be more work than it's worth.

Technology

There are three primary ingredients to videoconferencing: digital cameras (Web cams), an Internet connection, and communication software. Although some new digital still cameras are used to transmit live motion, purchase a stand-alone Web cam device for videoconferencing. The cost of these cameras has come down rapidly, dropping below \$50 for some USB devices.

USB Web cams provide relatively low quality live feeds. Because of low data transfer rates associated with USB technology, you'll experience fewer frames per second resulting in video with rough or jerky motion. USB cameras are appropriate for casual users, whereas you may want to portray yourself and your staff in a more professional light with clients, in which case you'll want to use a FireWire Web cam.

Most FireWire cams advertise 30 frames-per-second. Higher frame rates depict motion more realistically, creating a smoother, more natural motion with fewer abrupt changes in a subject's position. Higher frame rates also make it easier to communicate, show products, and express ideas. Ultimately, these factors make participating in a videoconference more pleasant.

Purchasing a FireWire cam does not ensure that you'll be able to transmit higher frame rates to your client. Think of the data traveling from your camera through your computer as an automobile on a highway (FireWire connection)

traveling at 65 mph. All of a sudden, the automobile approaches a one-lane road and must travel at 20 mph (56K modem). Therefore, videoconferencing works best when the data traveling through your camera to your computer can then travel to your client at comparable speeds, and vice versa. Consider using DSL or cable services to improve overall performance.

Communication software is the last primary ingredient to your high-tech, low-cost videoconference center. Although you and your client will not need to use the same cameras or share equivalent Internet connection speeds, compatible software is vital. Fortunately, there are a variety of different programs available to Mac users that also have PC-friendly companions for individuals without Macs.

The trick to finding the most suitable software is to try out a few different programs. Often they are free and available directly from the Internet. Pay particular attention to ease of use and compatibility. After trying

out a few of these programs ourselves at MacHome, we found some were more difficult than others to operate. For instance, getting sound and video to work in conjunction with each other, simultaneously on both computers, was challenging. At other times we experienced sound transmission delays, or sound did not transmit

at all. Video transmission proved problematic as well. It takes time to make the correct adjustments in the individual preferences folders so that both sound and video transmission are acceptable.



PYRO 1394 WebCam

We found a wide range of settings among the different programs we tested. Settings adjust everything — the size and quality of the picture you see, your microphone's responsiveness, and chat preferences, if available. We concluded that it is useful to find a program with fewer settings rather than more. This makes it easier on you and your clients, regardless of their level of technological savvy, to have a successful videoconference. As you gain a better understanding of how videoconferencing operates, experiment with more sophisticated programs and consider upgrading to something more advanced. Another option is to try out various programs in your office, as we did, and get the kinks worked out so that you're ready and confident when you approach your client.

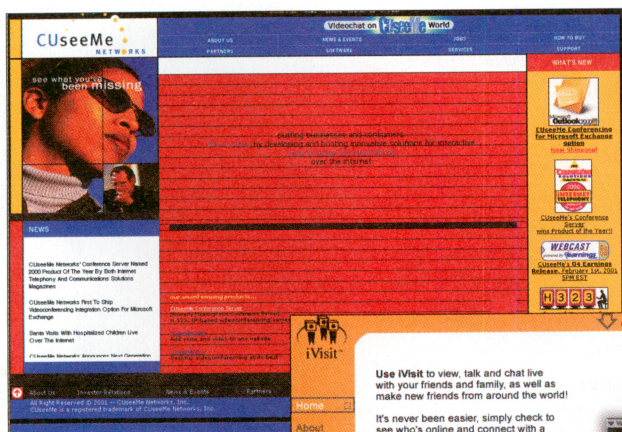
Production Considerations

Videoconferencing is similar to any meeting; have the resources at your disposal to make the meeting run as smoothly as possible. With this in mind, consider the following suggestions:

Be certain that you and the person (or people) you are conferencing with are comfortable with videoconferencing technology. If something goes wrong with a client's computer, will someone have the know-how to fix it for them at their location? If not, the conference might waste a tremendous amount of time, frustrating you and your client and making them less receptive to it in the future. The same holds true for you, the host. By all means,



KritterCam

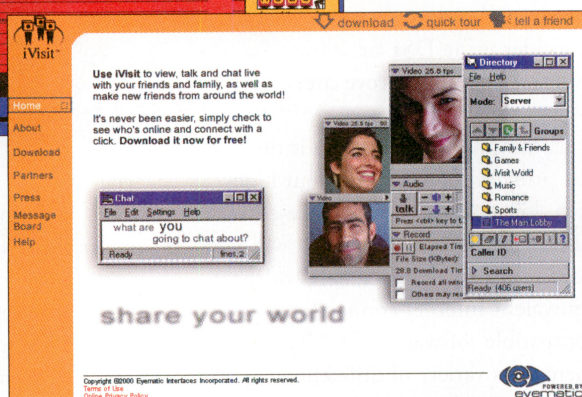


On the Web you'll find a variety of videoconferencing resources at your disposal. Go to some of the sites listed below and download free videoconferencing software.

take the time to go through a trial run and work-out any kinks early on. This will give everyone involved a greater sense of comfort and let you focus on the issues at hand.

Preparation for videoconferencing is paramount. Know what materials you are planning to present, and make sure that the client has everything that they need to follow along: copies of documents, specific products, or other information. Prior to the conference, make sure that you can quickly send replacement copies of documents by email or fax if necessary. Also, despite the age we live in, email attachments are not as easily read as you might think, and sometimes alternatives need to be presented. Sometimes they just can't be read. Create backup plans as necessary.

Now that you have your technology all prepared, it is time to play video producer. Think about where you'll be holding this conference. Although Macs are prevalent on desktops, this is not an accommodating location for a videoconference, especially if two or more people are involved. Find a quiet, well-lit room that you can use undisturbed for the allotted time. Does the room have the appropriate Internet, cable, and/or DSL connections? Would you like to set up a fax machine in the room? Is there a telephone? These are the ingredients that will make or break your future in videoconferencing.



Camera placement is important. Set the camera up facing a blank or neutral wall. A brightly lit window with people, trees, or moving objects like cars beyond it creates distraction. When you've placed the camera appropriately, decide who will be attending the meeting and where they will sit. Your participants might want to have something to write on, so choose an appropriate table. Will everyone be visible? You may want to limit the number of participants because of the size of the video image that will appear on the

monitor. Last, focus the camera appropriately and frame your subjects so they are centered and visible.

Remarkable technology, plummeting costs, and accessible software make videoconferencing available to all small businesses at minimal expense in both money and time. Developing a creative environment to exchange ideas with your clients may be easier than you think. By following a few relatively simple steps, you can share a live video feed with your most valuable business associates. **MHJ**

Digital Camera Resources

iBot

OrangeMicro
www.orangemicro.com

KritterUSB

iRez
www.irez.com

Pyro 1934 Web Cam

ADS Technologies
www.adstech.com

Video camera PC

Philips Corporation
www.philips.com

WebCam Go Plus

Creative
www.creative.com

Software Resources

CuseeMe

www.cuseeme.com

iVisit

www.ivot.com

ClearPhone

www.clearphone.com

DualView

www.dualview.com

iSpQ

www.ispq.com

ReallyEasyVoice

www.reallyeas.com

Did you know...

Bandwidth is directly proportional to the amount of data transmitted or received per unit time. In a qualitative sense, bandwidth is proportional to the complexity of the data. For example, it takes more bandwidth to download a photograph in one second than it takes to download a page of text in one second. Large sound files, computer programs, and animated videos require still more bandwidth for acceptable system performance. Virtual reality (VR) and full-length three-dimensional audio/visual presentations require the most bandwidth of all.

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If you do not have Internet access, you may send a S.A.S.E. to MacHome, 703 Market St., Suite 535, San Francisco, CA 94103 for a ballot.

A New Kind of Keyboard

Macally's iMediakey vs. Microsoft's Internet Keyboard

If you find yourself sitting in front of your computer for hours on end, day in and day out, you are acutely aware of the importance of a good keyboard. Apple's earliest keyboard, the Macintosh keyboard, found on the 128K, was compact and connected to the CPU via a telephone cord. Although it sported only 58 keys, it was functional and well built.

If you needed a numeric keypad, you could purchase one separately. In the years to come, Apple's ADB-compatible Extended Keyboard II was the standard on all Macs. The keys were laid out with just the right amount of space

By Ross Tibbits

between them and required an acceptable amount of pressure to activate. Apple increased the number of keys on the Extended Keyboard II to 105, which included a power button and 15 function keys.

Consumers today find themselves spending more time than ever on the Internet. Individuals are likely to sit down at their computer and immediately fire-up their browser and check their email. Consequently, third-party keyboard manufacturers have sought to accommodate this growing segment of the marketplace. Although many of the function keys on common keyboards are programmable, manufacturers now include numerous additional keys, specifically aimed at Internet and multimedia applications.

Getting Keyed-up

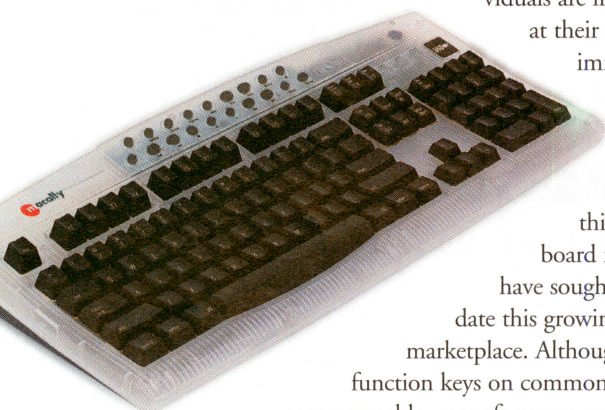
Two affordable, multifunction, Internet-ready keyboards

are Macally's iMediakey and Microsoft's Internet Keyboard. Each offers a variety of specialized keys to make traveling around the Internet faster and easier. They also provide immediate access to multimedia functions for playing QuickTime movies or CD and MP3 tracks from iTunes or other media players.

The iMediakey incorporates Apple's translucent theme with an industrial-designed see-through surface that looks like frosted glass with pinstripes. The standard keys are a dark gray, carbon color. Aside from the standard keys, including a numeric keypad, are 19 multi-function keys that reside at the top of the iMediakey keyboard. Unlike the other plastic keys, these are made of a soft, rubbery material. To their right is the On/Off button that sits flush with the keyboard's surface.

Microsoft's Internet Keyboard is truly corporate in nature. Obviously beholden to the beige boxes of the PC world, this well-made keyboard embodies everything the iMediakey doesn't. It has a staid look that means all business. It too has all the standard keys that you'd expect, and, like the iMediakey, it has an additional 19 specialized keys to distinguish it from other keyboards. This keyboard has a comfortable wrist rest that snaps onto the standard keyboard, or simply remove it.

You'll find that both keyboards are well made. The iMediakey has responsive keys that provide comfortable feedback. They are properly spaced and do not make too much noise while you type. One particularly nice feature of the iMediakey is that Macally has taken a Mac keyboard and used it as its template. Specifically, it has included the well-



known and oft-used Control and Command keys that are unique to Macs.



Computer (a holdover from the PC) key brings up your Finder when pressed. To the right sit the Calculator button and the Sleep button.

The Microsoft option has all the standard keys as well, but they come directly from a PC keyboard. So, if you are used to using the Command key on your Mac, you'll have to use the Control (labeled Ctrl) key on the Microsoft keyboard. To its credit, Microsoft has incorporated Apple's shortcut commands by embossing the front of specific keys with their secondary function — like Ctrl-B for Bold text. Like the iMediakey, the Microsoft keyboard is solidly manufactured.

Software

There are small, light blue Internet-ready keys spread across the top of Microsoft's keyboard within easy reach. But you'll want to load the software to make good use of them. Microsoft doesn't include Mac software in the box, so you'll have to download it from its Web site. Once installed, just go into your Apple Menu under the Control Panel, and you'll see Microsoft Keyboard. Inside this window you can program each of the 19 keys. Some keys already have default settings to open your Internet applications. The Web/Home key instantly opens up your browser. Once it's open, use the Favorites, Search, Stop, Back, and Forward keys to cruise the Internet superhighway. If you need to check your mail, press Mail, and your mail application pops-up.

Although Microsoft calls this an Internet Keyboard, it is really as much a multimedia keyboard. Press the Media key, and iTunes opens (or Apple CD Audio Player on older Macs). You'll see keys for all the primary functions for your player, including, play/pause, next track, previous track, and volume controls.

Located just above the numeric keypad are three buttons whose function is quite different from the rest. The My

Like the Microsoft model, iMediakey has its own software, but it includes a Mac CD in the box. Installation is as easy as loading the CD and clicking on the installer. After restarting your computer, the iMediaKey Manager, as it is called, is placed in your Control Panel. Programming each of the 19 keys is easy. All you have to do is press the key you want to program, and it is highlighted in iMediaKey's window. Then select an action or application from a drop-down menu.

The majority of the keys are preprogrammed for direct access to Internet and multimedia applications, like the Internet Keyboard. Where the two keyboards differ is in the breadth of their Internet-friendliness. Although the Internet Keyboard (aptly named) has more keys preprogrammed specifically for Internet applications, the iMediaKey by contrast has five keys labeled m1 through m5. These have no default setting and can be programmed at your discretion.

The Final Decision These keyboards are well designed, and their software is flawless. I really appreciated the design of Macally's Mac-friendly keys and the software that's included. Although Microsoft has Mac compatible software, I'd like it included in the box.

Regarding programmable keys, it's really up to you. If you are not interested in programming, Microsoft does it for you. If, on the other hand, you are interested in programming your keys, I'd suggest the iMediakey. Surprisingly similar, these keyboards are dramatically different in price — the Microsoft is a third the price of the iMediakey, tipping the scales in Microsoft's favor. **MHJ**

On The Road

An innovative design that will add flexibility to your lifestyle, Half Keyboard takes a new approach to portability. As the name implies, the Half Keyboard is literally half the size of a normal keyboard, but retains the functionality of a full-sized one.

The Half Keyboard lets you to type with your left hand with the use of dual-function keys. Half of a keyboard is accessible with the keys in their normal position.



Hold down the space bar to activate the other half of the keyboard.

Matias believes that this is an easy method to learn if you want to travel with a Palm rather than your PowerBook. It has a wide range of uses for students, business people, and individuals with limited mobility too.

*Half Keyboard, \$100, Matias, Inc.
www.halfkeyboard.com*

rating ★★★★★

iMediakey
\$89, Macally USA
800-644-1132

Mac keyboard, software included, 19 programmable keys

No palm rest, pricey

rating ★★★★★

Internet Keyboard
\$30, Microsoft, Inc.
800-426-9400

Palm rest, 19 programmable keys

No software included

iTunes

Among other recent announcements, Steve Jobs, iCEO of Apple, officially integrated the Mac to the multimedia world of MP3s, DVDs, and DVD-Rs. A cornerstone of this endeavor is iTunes, Apple's MP3 solution.

Download iTunes for free from Apple's Website, and it becomes your Macs default entertainment center. It plays CDs, downloads MP3s, plays Internet radio stations, creates song lists, and even burns CDs if you have a CD-RW drive. If you already have a selection of music on your Mac, it automatically searches your hard drive and locates all audio media, creating a music library.

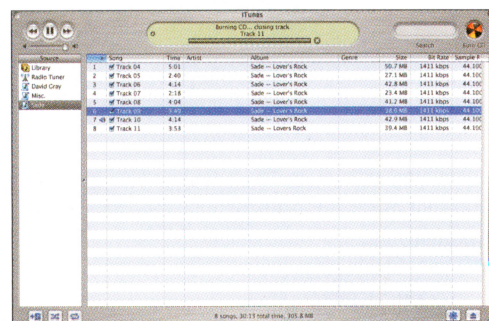
With a slick, metallic design borrowed from QuickTime and Aqua highlights, iTunes packs a lot of form. Function is also significant for anyone who needs to access gigabytes of songs. To navigate a

list of hundreds of tracks, just type the name of the musician, song title, or album, and iTunes displays those hits.

iTunes does an impressive job of ripping CDs at up to 320Kbps, but then it takes the tracks and hides them deep within nested folders. The same is true if you receive an MP3 track in an email. Although it automatically appears in iTunes' library, good luck trying to find it on your hard drive.

Another minor gripe, is that iTunes is missing adjustments for bass and treble. These features are integrated into QuickTime, and hopefully Apple will include them in a future release of iTunes.

The feature I liked the best was the light show found in the Visuals toolbar. Using bass and percussion frequencies, iTunes creates a dazzling, psychedelic light show on your desktop with exciting effects that mirror, rotate, and distort various wave forms.



The Final Decision There is hardly anything not to like about iTunes save for its quirky filing system and lack of tonal adjustments. It looks fantastic, it's easy to use, and you'll love the light show.

— Ross Tibbitts

rating

Free, Apple Computer, Inc.
www.apple.com

Great design, cool visuals, ease of use, fast MP3 ripping

Complicated default nesting system, no EQ or tone adjustments

RDC-7 Image Capturing Device

Want a sleek, small digital camera packed with features? At 9.5 oz and 5.3 x 2.9 x 1.1", the RDC-7 is power in your pocket. It captures images in five ways, from digital photos to movies, and doubles as a sound recorder. I enjoyed its black and white image mode. Then there's the choice of long-distance photography with the quick 3X zoom, or 0.4" close-up. The camera's manual was an excellent guide to using each feature, so the hardest part was deciding what options to use.

Snapping pictures was a breeze with the RDC-7's automated focus and shutter speed. The "white balance" settings

tackle five common lighting situations and red-eye reduction. Menus on the 2" LCD screen are easy to navigate. I also liked the button placement, but needed a manual to understand the icons.

Images look good at 2,048 x 1,536, thanks to the 3.3 megapixel minimum. (Megapixels indicate how many dots are captured for the image; more dots means better image quality.) In "Pro" mode, the camera squeezes in 7 megapixels.

But you'll need a tripod to take advantage of this mode — camera or subject movement creates blurry images.

The RDC-7 comes with a standard 8MB of built-in memory, plus a

SmartMedia slot. Eight

MB holds about 24 640 x 480 shots. You'll probably want to add a 3.3V SmartMedia card for \$2 to \$7 per MB.

Every camera needs portable power, so

the RDC-7's lithium ion battery lasts about 50 minutes of continuous use. I appreciated the fast two-hour recharge, too. USB and serial cables are included for image transfer. Ricoh also tosses in eight software programs that install smoothly, and handle the basic job of image editing. The software manuals, unfortunately, are only on the CD-ROM.

The Final Decision The image quality and generous feature set of the RDC-7 prove that good things do come in small packages. At \$999, this is a solid choice for the serious amateur.

— Sandy Brundage



rating

\$999, Ricoh
800-225-1899
www.ricoh.com

Captures photos, movies, text, and sound at 3.3 or 7 megapixels

Software manuals only on CD-ROM.

ACDSee 1.5

Digital images, MP3 tracks, and MPEGs inevitably find their way onto your hard drive. How do you view and manage media files so that you don't have to open each one to know what it contains? One inexpensive and fun way is to use a program like ACD Systems' ACDSee 1.5.

ACDSee is a browser for your digital media. In the four-paned main window you'll find the contents of your hard drive, a preview area, a column for favorite folders, and the images found in the folder you've selected. When you select a folder in your hard drive, thumbnail images of its contents are listed in the main window. Choose different views, or create your own with the customizable features.

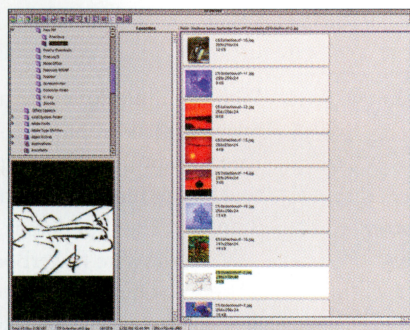
To navigate within the browser window, just press Previous Folder, Next Folder, Up a Folder, or Refresh — just as you would with an Internet browser.

Next to the navigation buttons is the Find tool to search for particular files.

Once you save the image lists you've created, you can send them to friends as easy-to-view HTML files.

Instead of file names like "kf002.1.jpg", ACDSee lets you create personalized names and suffixes. Simply select a batch of media, rename, and convert them to your liking. For instance, select the images you took on your vacation in 1999, go to edit, select Batch, and then Rename. Now type in "Vacation 1999", and click Rename. ACDSee then converts your image names and adds sequential numbers as well.

ACDSee can preview over 40 well-known media formats, and play MPEGs, QuickTime, and MP3s within the



browser window. If you need to convert them, select from ten different formats without worrying about overriding your original files.

The Final Decision

ACDSee is a useful tool for managing media. You can customize views, names, and even add notes to images with ease. This is a great program for anyone who wants to organize and simplify their media collection.

— Ross Tibbits

rating ★★★★★

\$40, ACD Systems, Inc.
www.acdsystems.com
800-579-5309

Easy to learn and use, renames files, modifies suffixes, helpful contact sheets

Not a one

StuffIt Deluxe 6.0

Many companies make it easy to surf the Internet, but it's up to you to have the proper tools once you're there.

Aladdin's StuffIt 6.0 is a good place to start.

The premier compression utility for the Macintosh just got better. Aladdin replaced the archaic looking interface with a new look that sports better contextual menus for almost every function.

Have you ever wanted to create an archive without having to open another application? An attractive feature of StuffIt 6.0 is the seamless integration of what Aladdin calls "smart" contextual

menus. They allow you to perform a number of useful operations like stuff, encode, and mail without ever opening the program itself.

The mail command feature is quite a time saver. Using the contextual menus, you simply click on a file or archive and StuffIt opens a new email with that file already attached. Unfortunately, Microsoft Entourage is not a default option. For archived files use the new ArchiveSearch feature to browse and open individual files contained within any archive.

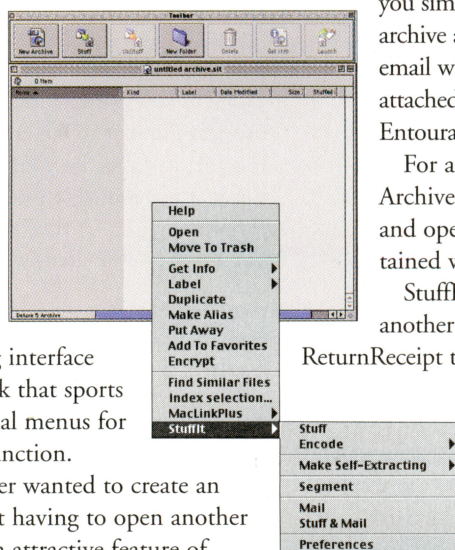
StuffIt 6.0 is outfitted with another new option called ReturnReceipt that will email you when your file is safely unstuffed at its destination. This useful feature could be foiled, however, if the recipient elects not to respond to the prompt during extraction. You must operate within the applica-

tion to use ReturnReceipt, in contrast to many other StuffIt features that are available using the contextual menus.

Other highlights include automatic updating and a verify command that will rescue individual files from a corrupt archive.

The Final Decision StuffIt 6.0 is a must-have for Mac users that send and receive compressed files via email. The new interface is refreshing as are the behind-the-scenes changes. Hopefully, there'll be Entourage support soon.

—Peter Balint



rating ★★★★★

\$79, Aladdin Systems
www.aladdinsys.com
831-761-6200

New design, ReturnReceipt, archive search ability

Lacks Entourage support, Can't access ReturnReceipt options from contextual menus

iBot Pro

Web cams are video appliances that plug into your computer to capture footage typically used with videoconferencing. The promise of FireWire Web cams is that the resolution and frame-rate will exceed USB cameras. However, the iBot doesn't provide this benefit, although it worked with every videoconferencing application tested.

The iBot's disappointment for videophiles is that it captures up-to 30 frames-per-second (FPS) video at 640 x 480 pixels. Don't expect top results unless you've got a fast drive and a fast processor to handle the fat 30-frame data stream. After testing the iBot on different systems, the best result I achieved for 640 x 480 video was 15 FPS. Fifteen FPS is fast enough for employing the iBot as a videophone or



Web cam, but not enough for any creative, local video projects — like using an iBot to capture science experiments and viewing individual frames.

The iBot doesn't work with FireWire PowerBook G3s, but in Orange Micro's defense, the problem lies with Texas Instruments. TI's chips control the FireWire ports, and some were manufactured with a flaw that conflicts with the iBot.

The iBot performs as expected for videoconferencing (see this month's Mac Workshop). For every conferencing application that I threw at it, the iBot worked. With local-network conferencing, the iBot's limited frame-rate is apparent. However, because your connection speed impacts performance, Internet videoconferencing looks as good on the iBot as on other cameras. A built-

in microphone would have helped with videoconferencing, but at least Orange Micro includes an external mic.

The Final Decision If you don't need top frame rates or a built-in microphone, and you only want to use a camera on the Internet, the iBot is worth considering. Its quick installation will let you start videoconferencing right away. However, if you want to capture full-screen, full-motion video in addition to Web work, keep looking.

— Zack Stern

rating

\$150, Orange Micro, Inc.
www.orangemicro.com
714-779-2772

 Works with many applications, includes videoconferencing software

 Won't achieve 30 frames-per-second without special hardware, no internal microphone

Contour ShuttlePRO

If you are, like me, a veteran of the great video format wars, then maybe you yearn for the days when video editing felt less virtual. The ShuttlePRO, by Contour Designs Inc., is an alternative to your keyboard that feels closer to a traditional edit controller. This device can also be used with games and graphic applications.

Ideally this USB device, used in conjunction with your mouse, saves time by providing easy access to the most frequently used keyboard commands. Unfortunately, I found myself still using the keyboard often and editing speed was not significantly decreased. You still need both your mouse and keyboard to select



menu items not accessible through the easily programmable buttons.

I was disappointed by the long time delay between twisting the shuttle knob and the position change along the editing timeline. While it may not be fair to compare the responsiveness of this device with a dedicated edit controller costing ten times as much, I did

expect it to shuttle from point to point as fast as my mouse.

However, when logging and capturing footage from my camcorder into my editing program, I found the shuttle knob and edit

point set controls reasonably responsive and considerably more comfortable than using a keyboard or my camera's remote controller during an extended logging session. I especially liked the precision feel of the jogging

wheel while viewing individual frames. The circular finger motion used to advance the playhead from frame to frame is a real time saver compared to using the keyboard arrow keys. Using the ShuttlePRO, I felt a little more connected to the tape medium and less like a typist.

The Final Decision Even if you just use this product to log and capture footage, it simplifies your editing sessions. It is reasonably priced and comfortable to use.

— Eric Ross

rating

\$100, Contour Designs Inc.
www.contourdesign.com
800-462-6678

 Great logging tool, comfortable to use, reasonably priced

 Significant delay moving along timeline

AirStation Local Router Model

The AirStation, a wireless networking router, is intended to wirelessly connect Macs and PCs that have wireless networking cards (like AirPort cards). You could take your iBook a hundred or more feet away from the AirStation while still maintaining a connection to the Internet. However, I was only marginally successful putting this into practice with the AirStation, despite many attempts.

This AirStation includes some unique features. To connect online, attach to your cable, DSL, or other direct Internet line with an Ethernet cable. The AirStation also provides Ethernet ports for four computers to access the network. This ability to work with wired and wireless computers without any other router could make the AirStation appropriate for new, small networks.

Actually using the AirStation is another

matter. I first tried it at home, and I got stuck because my DSL line, like other wireless routers, uses a common protocol called PPPoE. While the AirStation isn't compatible yet, TechWorks advised me that a software update would add PPPoE functionality shortly, giving the AirStation a significant edge over competitors' solutions for many DSL users.

At work, setting up the AirStation was an exercise in patience, experimentation, and tech support. The product comes with more than a hundred pages of documentation; however, none gave any details on using the AirStation with a Mac. Hidden in the TechWorks Website, you'll find a terse PDF with Mac installation instructions. Instead of an automated setup, you're faced with blank fields for DNS addresses, IP addresses, and other demons lurking inside your Internet connection. After literally hours of setup, I was able to get online.



The Final Decision If you need a wireless router for a connection that uses regular TCP/IP networking, and you also need a wired router for up to four

computers, the AirStation is worth considering. Upcoming PPPoE support could make it more compelling. For home users and people who'd rather not deal with difficult manual configurations, the AirStation will cause more grief than joy.

— Zack Stern

rating

\$340, TechWorks, Inc.
www.techworks.com
800-688-7466

802.11 wireless cards for each computer

 Includes wired router functionality

 Complicated setup, no Mac documentation

Epson Stylus Photo 875DCS

Printers are now coming to the marketplace that incorporate high quality printing technology with secondary features that allow you to use other devices, like cameras, directly with the printer. The Epson 875DCS has a built-in PCMCIA card adapter for a Memory Stick, and a special roll adapter for 4x6 inch print paper.

This is a great printer if you own a Sony digital camera. The 875DCS has a PC Card slot (just like the PowerBook G3s) and comes standard with a PC Card adapter that accepts Sony's Memory Stick. Just pop the stick out of your camera and use the printer as a reader. Software included on the CD lets you



view the digital images stored on the card before you print.

Another innovative design feature on the 875DCS is its slick 4-inch wide paper roll adapter that attaches to the back of the printer. Load a roll of photo premium glossy paper (included) onto the adapter and print individual images without wasting expensive photo paper. Epson thought of almost everything, including a rewind function for the roll in case too much paper rolls out. Unfortunately, there's no simple way to cut the paper, save for getting out a pair of scissors and then squaring the edges later.

The Epson's six-color printing technology ensures that your images are going to look good. And you'll find a wide selection of paper settings to meet all your printing needs. To print, just select the paper type and the print quality. There are two standard set-

tings, Quality (720 x 720) and Speed (360 x 360). A third, available under the Custom button, allows you to increase dpi to 1,440 x 720. It would be nice if this setting were available in the main print window. Test prints revealed good color rendition and sharp edges, while text proved precise and crisp under all settings.

The Final Decision Printer prices are dropping rapidly while new and practical features are being added. The 875DCS is great value for your money, especially if you use Memory Sticks.

— Ross Tibbits

rating

\$199, Epson America, Inc.
www.epson.com
800-463-7766

 Handsome design, MemoryStick adapter, roll adapter, great prints

 No SmartMedia or FlashCard adapter, highest print setting hidden

Que! M2

You can never have enough disk space. Consumers increasingly fill their hard drives with digital images, MP3 tracks, QuickTime movies, and volumes of business-related data. One solution is to purchase an external hard drive. The Que! M2 FireWire drive from QPS is notable because of its small size, speedy performance, and innovative design.

The M2 will have friends and associates asking "What is that?!" Your answer might include descriptions of the casing, the FireWire ports, and the host of accessories that come with it.

The translucent plastic enclosure surrounding the 10GB hard drive makes it look as though it's encased in ice, and it's remarkably scratch resistant. The pointed blue accent on the top allows the M2 to be stacked with other M2s, an excellent, space-saving idea. Yet, it's sharp and can damage anything it's pressed against.

To connect two or more M2s, QPS has integrated a FireWire socket on top of the drive, and a plug in the base. This innovative idea saves you from the added mess of cables and eases portability. The only drawback is that the FireWire plugs are exposed to dirt because there's no cover. But, you can protect the FireWire plugs by attaching the cool suction-cup-fitted base. This stand keeps the lightweight M2 elevated above your desktop or even on the side of your Cube or G4.

The M2 and its accessories come in a nifty travel case. There are two FireWire cables, 6-pin and 4-pin (for DV), a belt clip, the suction cup attachment, and software.

The software includes Dantz Retro-spect for backing-up your hard drive,

and CharisMac's RAID utility, which lets you manage hard drive space efficiently.

The Final Decision

The M2 offers practical portability, functionality, and expandability in an innovative design. Aside from the sharp-edged insert and the exposed FireWire sockets, the M2 is a viable solution to your storage needs.

— Ross Tibbitts



rating



\$329, QPS, Inc.
www.qps-inc.com
800-559-4777

👍 Innovative stackable design, great accessories, useful software

👎 Exposed FireWire ports, sharp clip on top of unit

Xcaret Pro 2000 CDRW Drive

The 1999 and 2000 G3 PowerBooks are flexible because of their expansion ports. Extra batteries can be put in the battery port, while on the right side, a variety of different components can be used in place of the standard CD-ROM drive. One such component, manufactured by MCE, is the Xcaret Pro 2000 CD-RW Drive.

The 13.1 oz Xcaret Pro writes CD-Rs at 4X, rewrites CD-RWs at 4X, and reads CD-ROMs at 20X. Although external CD-RWs perform well beyond these speeds, internal drives speeds remain relatively slow, but their benefits

outweigh their speed restraints. I've used it for everything from playing music CDs to burning CD-Rs. In two weeks of testing, I haven't experienced a single problem with the MCE.

The Xcaret Pro comes in a well-built and protective carrying case that holds either your Apple CD-ROM drive or the Xcaret. You'll also find

a software package that includes Toast 4.0 for burning music CDs or creating backup disks.

Although the drive fits very well into the PowerBook, the drive's CD tray door didn't

close as tightly as the standard Apple model, leaving it sticking out with some lateral movement as well. This didn't affect performance, but it could be improved. "MCE Xcaret PRO 2000 CDRW" is emblazoned on the tray door, giving it a distinctive look that will certainly set your PowerBook apart from

the others. There's also a green activity light to let you know when the drive is in use.

The Final Decision The MCE Xcaret Pro makes burning CDs and reading CD-ROMs incredibly easy. The Xcaret performs very well in typical home and office environments, where speed is not a crucial component. This CD-RW is particularly suited for individuals that travel and need the added flexibility this device offers. The Toast software and sturdy carrying case are sure to please. The drive's speed and fit issues are outweighed by its portability and reliability.

— Ross Tibbitts



rating



\$349, MCE
www.mcetech.com
800-500-0622

👍 Flexibility, Toast software, carrying case

👎 Minor fit and finish issue

Hewlett-Packard All-In-One

Getting the Most Out of Your Office Equipment

Today's business world depends on fax machines, copiers, scanners, and printers — all of which eat up lots of space, consume money, and clutter up electrical outlets. It's no wonder successful businesses are leaping to change over to all-in-ones.

These innovative products conserve office space and money by packaging many functions into one device.

Fax machines, copiers, scanners, and printers are necessary in today's business world, but they require lots of space, money, electrical outlets, and supplies. Because successful businesses depend on these devices, and are often constrained by space requirements, they have turned to all-in-ones.

These innovative products save you time, space, and money by interweaving many functions into one device.

By Ross Tibbitts

The best place to start is with the HP G85 software. HP has done its homework, providing you with the resources and options you need. Installing the HP Director program is hassle-free. Unfortunately, to connect the G85 to your Mac, you'll need to purchase a USB cable, which is not included.

The HP Director window opens automatically at startup. The compact program window gives you instant access to the G85's functions: Scan, Copy, Fax, Email, OCR, Tools, Customize, and Help. Select the print function via your chooser.

The HP printer window appears each time you print a document. Select one of four print modes: Draft, Normal, Best, or High Res Photo. Printing regular text documents in Draft mode (300 x 600 dpi) produces 12 pages a minute. You'll get a quick 10 pages a minute in color, but although colors reproduced well, you'll see horizontal streaking. As you increase the quality of the print from Draft to Best, dpi remains relatively constant, while printing time increases to allow more layers of ink on the page. Photo mode, used on glossy photo paper, provides a remarkable 2,400 x 1,200 dpi.

If you have a network, purchase the HP JetDirect 170X networking option for about \$144, so that everyone can use the G85. Another worthwhile option is the \$79 Two-Sided Printing Module that saves you lots of paper.

To make a copy, place your document(s) in the rear vertical tray, enter the number you'd like, choose quality, and

then press Color or Black. The G85 draws the document through, scans it, and begins silently printing copies.

HP partnered with the creators of ReadirisPRO 6, the powerful OCR software (see our March 2001 issue), making

high-quality scans easy. Place a color or black and white document on the flatbed scanner and select Scan from the Director. This action brings up the HP Scan window. Preview your document, and select the appropriate settings — there are plenty to choose from, including Image Type, Adjust Brightness/Contrast, Adjust Color Balance, Resize, Rotate, and Sharpen/Blur Image. You'll also choose where to send the document: OCR MSWord, OCR SimpleText, and Outlook. The only option missing is email to Netscape.

The Final Decision Finding an all-in-one with a flatbed scanner is nice. Finding one that's well-designed is even better. The G85 is all of this, and it makes remarkably good prints. Scanning, copying, and faxing tools are at your fingertips. Although the G85 requires a USB cable and doesn't connect to Netscape email, you'll be hard pressed to find anything wrong with this all-in-one. **MHJ**



rating ★★★★★

HP OfficeJet G85
\$600, Hewlett Packard, Inc.
www.hp.com
800-752-0900

Easy to use, well designed software, high quality prints, OCR software included, flatbed scanner

USB cable not included, no "scan to Netscape" option

Welcome: It's AOL 5 for the Mac

America Online's Latest Version Touts Features for All Tastes

Oh, that voice. Instantly recognizable, an inexorable part of the popular culture, and, depending on your state of mind, filling you with either expectation or dread. You know what it says: Welcome, You've Got Mail! Thus begins your experience with America Online.

What with all of the recent corporate activity, including AOL's protracted and ultimately successful merger with Time-Warner, it's easy to forget the online service's humble beginnings, as well as its synergistic historical relationship with the Macintosh. It all started in 1989 when AOL emerged from what was then called AppleLink, an exclusive online service for the Macintosh community.

The world has changed since the AppleLink days. With the release of AOL 5, the cross-platform online service again emerged as a premiere service for Mac users, packing many nifty new features such as an interactive calendar,

the ability to retrieve messages that you've deleted within the last 24 hours, the ability to hear messages in chat rooms, email, and instant messages through Apple's text-to-

By Jackie Dove

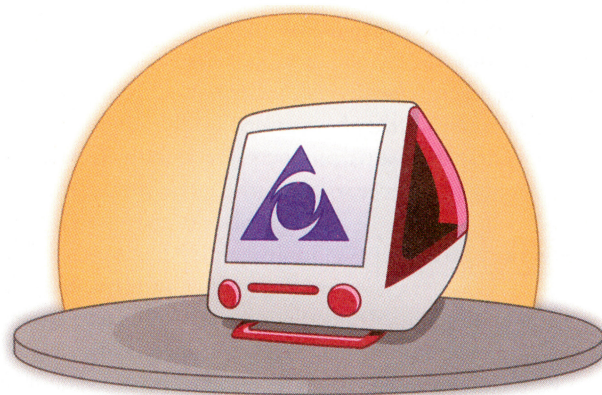
speech technology, the ability to personalize your Welcome screen, email signatures, and a revised AOL search engine that lets you simultaneously search the Internet as well as AOL's own content.

It's easy to get up and running with AOL: Just install the software and double-click the alias icon that appears on your desktop after installation. From there, you set up your account by choosing a master screen name and password and entering your credit card information. After that, you're free to explore the vast AOL landscape.

AOL All the Time

Why use AOL instead of, say, an ISP though which you can browse the Internet with a popular browser or use the email program of your choice? One of the most compelling reasons to choose a consumer technology is that other people you know are using it.

Indeed, many of the new features of AOL 5, such as send-



ing embedded animated GIFs via email, or embedding sounds in email, work only between AOL subscribers, and not with other email programs, and that may be a downside for those who correspond with non-AOL users.

No doubt another reason AOL is so popular is its friendly interface and unabashed dedication to the popular culture. From either the main menu or Welcome screen, you can access with a single click more than a dozen consumer categories or channels such as entertainment, computing, health, and games. That is in addition to news, weather, and the "Today on AOL" fun features on the Welcome screen.

The new version of AOL lets you use up to seven different screen names (one for each member of the family or for each of your own separate personalities), each with its own email and password. You can even switch between screen names without redialing. As always, AOL lets you set filters for the kids so that they view only material on the Web that you deem appropriate for their age group.

The main menu, which appears as a colorful bar at the

top of your screen, contains the core navigation and features of the service including mail, chat, channels, calendar, stock quotes, and more. A Filing Cabinet lets you store downloads and email, and AOL 5 gives you an easier way to find, access, and store downloaded material.

Need Help?

If you're a beginner, a step-by-step AOL Help guide will give you the basics on the functions you need. Help is abundant, and each feature has detailed information to get you up and running. At times, however, you will find yourself digging for specific instructions.

If you are not a beginner, just clicking around will make most, but not all, moves obvious. Be prepared to spend some time familiarizing yourself with AOL's conventions and features so you can find what you need quickly.

Alas, technical support at AOL was not as easy to locate as the built-in documentation. For instance, when we tried to access AOL's toll-free phone number for tech support, we got an error message on a Web page. When we tried to access online help, we got the same error message. However, once we found the list of toll-free numbers, we were well served by a warm and sensitive AOL employee who picked up within two minutes and also reported the Website error messages.

Buy and Sell

The AOL Welcome screen, while friendly, is rather crowded for some tastes. Often, when you log on to AOL, you get some kind of commercial message or offer in a pop-up screen. While you certainly don't have to take anyone up on this, you do wind up reading an advertisement and making a decision to buy or not. Many AOL channel screens have at least one ad (or two or three). This may annoy some sensitive souls.

Ramblin' Round

You can easily navigate through the various menus and windows of AOL and the Web pages

AOL 5: New and Improved

A host of new and updated features in AOL 5 are flexible and facilitate your online productivity.

You've Got Pictures

Who doesn't want to share photos of loved ones? AOL makes this a snap with the new You've Got Pictures feature, a partnership between AOL and Eastman Kodak. It gives you online photo services such as storing and



sharing photo albums and ordering prints. And hey, you can even place your photos on mugs and t-shirts and other novelty gifts.

Search This

AOL uses a Keyword search mechanism with predefined keywords that you can access via a mouse click. While that appeals to some, others may just want to use their own keywords to search the Web, AOL, or both. The Keyword search function worked very well, even on obscure or non-commercial items. Just press command-k and enter a keyword.

My Places

If you have specific areas on the Net

where you often go, you can set up links to them via the My Places box on the Welcome screen. This personalizes the Welcome screen

however we also found it inflexible as it leads to only to a limited number of pre-defined categories rather than specific URLs.

Goin' Shopping

You can reach Shop@AOL right from the Welcome screen. If you don't find what you want from the main menu, just enter a keyword and it will present you with a Web page full of specific shopping links. Within a second mouse click, you can add items to your shopping cart. The main menu of categories is visible from each shopping page which makes shopping easy.

Keepin' Track

AOL 5 has an interactive online calendar that you can use to make appointments, check local event listings, and, most important, check your horoscope. View the calendar by month, week, or day, and fill in items. We found this easy and fun. It's even got a neat little weather forecaster. Every item you enter comes up as a link in the calendar so you can add notes or email an item to someone else.



dar that you can use to make appointments, check local event listings, and, most important, check your horoscope. View the calendar by month, week, or day, and fill in items. We found this easy and fun. It's even got a neat little weather forecaster. Every item you enter comes up as a link in the calendar so you can add notes or email an item to someone else.

Instant Messenger

When you sign on to AOL you also get the AOL Instant Messenger service, which you can use to chat in real time with others who are either on AOL or use the Netscape IM service (AOL owns Netscape.) You can set up a Buddy List which lets you know when your friends are online. When they sign on, send them an instant message!

Tip...

To run AOL, you need a Power Mac with 32MB of RAM running System 8.1 or higher, and 30MB of available disk space. Keep your virtual memory enabled.

by facilitating your choice of links,

it opens though a drop-down menu on the navigation bar that lets you go back to any URL you have visited.

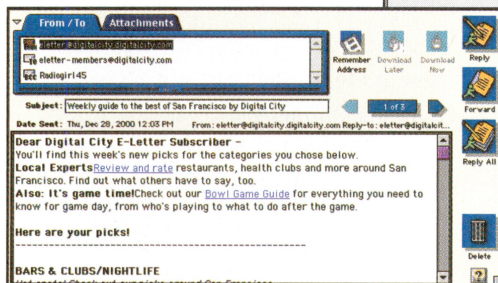
However you choose items— either from the Main Menu bar or the Welcome screen, AOL does tend to proliferate many open windows, which can get cumbersome and consume precious memory, and we often got low-memory alerts. It helps to close all windows you don't need using the Windows menu choices in the Main menu.

Is it the 'Net?

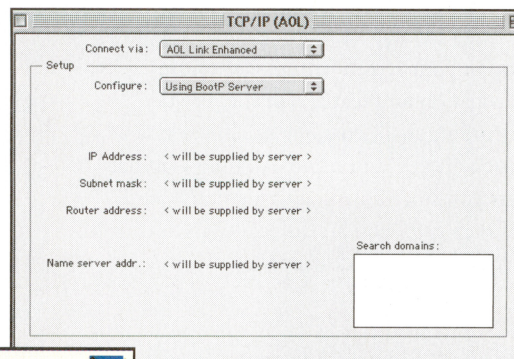
You can easily access Web pages via AOL. And in fact, the AOL browser, previously famous for rendering HTML (the language of the Web) in surprising and sometimes unpleasant ways, has vastly improved. Most Websites in AOL now look indistinguishable from browsers such as Netscape, Internet Explorer, or iCab. Even JavaScript rollovers and other such high-tech niceties render well.

An improved email function now lets

that there was no specific link to Mac resources in the Computing channel. Then too, as you browse through software and other platform-specific items, there is sometimes no clue as to which are for the Mac, and that can be time consuming if you are looking for something specific. A keyword



AOL sets your TCP/IP settings (above) so you can access the Internet. It will automatically switch them back to their original settings when you log off the service. AOL's mail interface (left) options.



If you have a problem switching back and forth between AOL and your non-AOL dial-up connection, check your TCP/IP settings to make sure that if you are logging on to the Internet via your ISP, you are using the PPP Server. Using AOL's dial-in number, you are logging on via the BootP server with the setting AOL Link Enhanced.

If these configurations are incorrect your browser or email program may crash, your system may crash, AOL may crash — or all may crash. After a crash, bringing AOL back up again not only involves a force quit, but a total restart of the computer, otherwise Web pages will not load.

Dialing into AOL via your ISP connection, which you can do by creating a new location in the Welcome setup, is cheaper (at this writing \$9.95 a month as opposed to \$21.95 a month), and the program will not touch your TCP/IP settings at all. You'll have to notify the billing department that you're doing this, however.

You May Get Hooked

AOL may be an acquired taste for some and indispensable for others. If everyone you know is using AOL, a rich palette of amenities is available to make your online life lots more fun.

If you already browse the Internet using a conventional browser and your own email program, you may want to consider AOL as an alternative for its easy access to a vast variety of computing, entertainment, and cultural features. The choice is yours. **MHJ**

search was quick enough, however.

AOL or ISP?

If you already have an ISP through which you access the Internet, you do not need AOL for that purpose. However, for various reasons, some folks may want both. Whether you use a dial-up modem to connect to the Internet via AOL's own access numbers or through your ISP, be sure to keep the checkbox in the AOL Link preferences checked, as that is your entree to the Internet on AOL.

If you sign on to AOL through its own access number, the program gives you a message that it is changing your TCP/IP settings so you can use the service and at the same time access the Internet, use your browser, or use another email program. AOL changes your TCP/IP settings because AOL does not use PPP protocol to connect to the Internet. You may take note of those changes in your TCP/IP control panel, but you should not have to fool with any of these configurations yourself.

AOL generally returns your TCP/IP control panel back to its original settings after you log off, however, we found that feature a bit quirky. In several sessions it did not do this but later started behaving better for no apparent reason.

you view animated GIFs (moving images) right within your email window, if sent by another AOL user, and you can play sounds embedded within your email as long as they are sent by another AOL Macintosh subscriber.

What is especially cool about AOL 5 is that esoteric things that you would normally search for with your browser are grouped together and provided at your fingertips, though in rather limited format. For instance: shareware and fonts. Normally, you'd have to search for these things, but if you go under the menu item Internet Connection, there is an entire section that leads you right to them. While we were busily downloading in no time flat, we were disappointed

Tip...

So you want to find out about all things Mac on AOL? Just type in the keyword Macintosh and it will lead you right to the AOL Computer Center: Macintosh Community. There you will find an abundance of chats, bulletin boards, home pages, and other Mac-related features.

Home Explosions

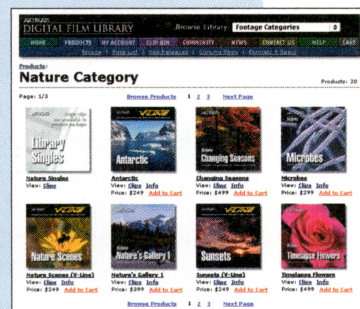
Say your idea of a home movie is one with exotic cities or rainbows of explosions. With the ArtBeats Digital

Film Library, you can follow in Spielberg's footsteps without his million-dollar budget.

ArtBeats sells collections of royalty-free digital videos organized by theme. "Our footage has been used in various trailers and movies like *Charlie's Angels*, *Mission Impossible 2*, and

Disney's *The Kid*," Julie Hill, director of advertising for ArtBeats, says. Delivered on CD-ROM, the clips are in QuickTime format. QuickTime Pro will convert the videos to work with iMovie.

www.artbeats.com
541- 863-4429



MachHome Does Hollywood

iDisk, part of iTools (www.itools.mac.com), is a great way to share iMovies and QuickTime videos over the Web. After all, what's the point of making a

movie if no one ever watches it? By copying an iMovie or QuickTime file into the iDisk movies folder, you can display the video on

your Web page. You can even create online movie theaters with design themes like "Retro-TV" or "Drive-in," thanks to Apple's HomePage, also part of iTools. But if you've just started exploring the world of digital filmmaking, you might not have anything to show off.



Cameras, Cameras Everywhere

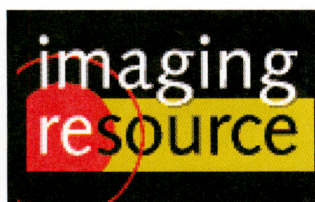
Maybe you don't even have a camera yet. Or maybe you've captured so many images that the memory is crammed full



and you need more room. Cameraworld is a one-stop shopping site for cameras, lenses, memory cards, accessories — you name it. You can search the inventory by category or brand name, so it's easy to find what you need quickly.

www.cameraworld.com
800-226-3721

One Picture Is Worth a Thousand Reviews



Looking at sample images on your monitor really doesn't show you everything you need to see about a camera's image quality before you buy the camera. But now you can order an 8 x 10 print from Ofoto.com of an image taken by the staff at Imaging Resource for each camera that you're thinking about buying. The images are printed on

Kodak paper, so you know exactly what kind of image quality you'll be getting.
www.imaging-resource.com/OFOTOLISTING.HTM

[Digital Idiots.com]
a guide to digital filmmaking



Smart People Need Help, Too

Now you've got a video camera — how do you move those ideas in your head to the screen? How do you email a video to your mother? Any other questions? The Digital Idiots Guide to Digital Filmmaking has answers. With tutorials for step-by-step movie creation, forums to swap ideas with other digerati, and a bookstore stocked with the latest guides, you'll find all the help you need.

www.digitalidiots.com/Index.asp

Getting Married?

By Jackie Dove

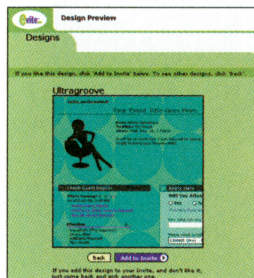
Partying Online

Weddings, parties, celebrations, get-togethers — they may look simple and fun, but not if you're the one planning them. In the old days, when planning was all done by hand and correspondence had to go through the U.S. mail, things tended to get lost in the shuffle. ("What do you MEAN, you never received my RSVP? I mailed it MONTHS ago!") Now, you can use the Web as a fast, easy way to plan your event. Do everything from party invites, planning, keeping track of RSVPs, to, of course, buy supplies and gifts! And the price is always right at these sites — free!

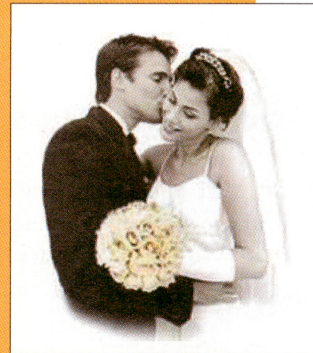
Evite (www.evite.com) lets you invite hundreds of your closest friends to a sit-down dinner at your mansion, or maybe just the gang at work to the nearest bar to celebrate your birthday. The site lets you pick from a range of event types such as parties and entertaining, going out, or wedding related. Once you pick, you'll get a special invitation design (or many design choices from the design gallery), a form where you can enter dates, locations, and times, and even your guest list. The

software lets you send photo albums, collect payments (if applicable), and buy gifts. Need party supplies? Evite connects you to vendors from which you can order anything from food to candles or even hire a DJ.

thePlunge (www.theplunge.com) does more than just let you invite people out or in, though you can do that easily. Rather, thePlunge.com is bulging with neat ideas that you probably never thought of to make your party unique. We found ourselves taking time with articles on such things as party themes, wine, and how to make beautiful vase arrangements from leftover tin cans (we kid you not!). The site even links you to cookbooks and flower arrangements you can buy — all accessible with a single click.



We all know that planning a wedding is a once-in-a-lifetime (well, maybe more like twice or three times, but anyway) experience, and it's imperative that everything go just right. You can rely on WeddingChannel.com (www.weddingchannel.com). The site has two entrances: one for the bride and groom and one for the guests. For the guests, the main activity is shopping. Just enter the lucky pair's name, and you'll get a list of what they registered and where you can order gifts online. For the wedding party, there are tools such as a guest list manager and budget planner, message boards, plus answers to esoteric concerns such as whether you should have invitation liners ("a nice, formal touch"). You can also use the site to create your own wedding home page!



Wedding Expressions (www.weddingexpressions.com) is a simple site with many text links that give you an online wedding planner as well as places to buy accoutrements such as gowns and other supplies. You'll find plenty of resources on how to get started with your nuptials, including how to announce your engagement, determine your wedding style, choose wedding attire, and plan the ceremony, refreshments, flowers, photographers, and much more. A handy shopping cart lets you purchase directly from the site.

For the Little Ones

Are you planning a birthday party for your sweet darling? Be sure to check out Birthday Express (www.birthdayexpress.com). This colorful Website lets you plan your child's party as well as buy party supplies and gifts. A ton of party themes range from *NSync (with matching paper plates, napkins, favor bags, balloons, crepe paper, and what not) to Madeline. There's also links for toys, a party planning checklist, and e-card party invitations. Do you need further help with this momentous occasion? Don't hesitate to chat with customer service using your Internet connection (though they are not always available), send them an email, or dial their toll-free number.



Subscribe

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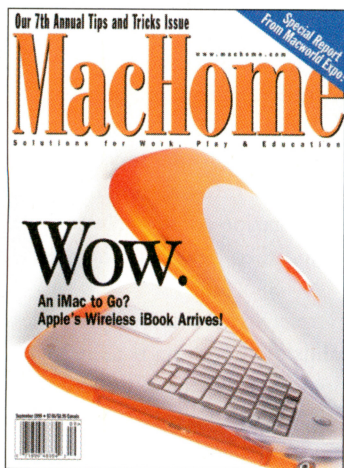
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you on the way to being a more savvy Internet user. We offer the best advice on email, Web browsing, ecommerce and troubleshooting.

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Turn the Electronic Page

eBook Infiltration

Attach the letter “e” to a word — eMail, eCommerce, eCard, eBusiness — and it achieves new meaning. At times, I think about adding an “e” to the beginning of my name. eCarolyn would suggest that I’m more accessible, efficient, and agile than a mere mortal could be.

The “e” might strip a word of its warmth — consider writing an old-fashioned letter with ink and textured stationery versus writing an email — but it clothes that word with attire necessary for today’s fast-paced climate. By now most of us have accepted that we inhabit electronic times, and for better or worse, we feel the staggering effect.

By Carolyn Blackburn

It was only a matter of time before the “e” propped itself on our bookshelves. Indeed, eBooks are here. They are turning up in schools, libraries, and all over the Internet — you’ll be hearing so much about them, in fact, that you may be inspired to write one. Some folks are still wary of the eBook and its future, but recent evidence points to its increasing popularity and staying power.

What Is This Thing Called eBook?

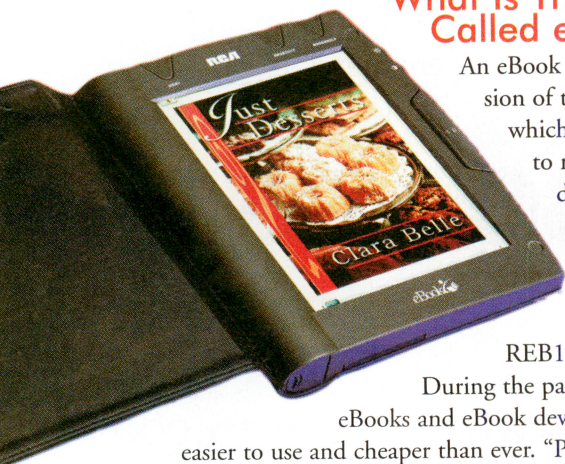
An eBook is the electronic version of the written word, which you can download to read on your laptop, desktop, or on devices manufactured specifically for electronic reading (such as the RCA REB1200, pictured here).

During the past several years, eBooks and eBook devices have become easier to use and cheaper than ever. “Price and convenience

are what make eBooks inevitable. You can buy an eBook without leaving your desk, and start reading it in a few minutes,” explains Stephen Cole, CEO of www.ebooks.com, an online eBookstore. “It’s called ‘interactive reading’ — it makes sense for many busy students and professionals to have their reference materials and texts on their desktop computers or laptops, along with their other tools,” he says. Basically, users connect to the Internet, search for a particular eBook — poems, magazine articles, reference materials, among others — and then download the electronic content.

The eBook has several attractive qualities, including less physical bulk. With thousands of eBooks on the Internet, available for free or for a nominal fee (generally about \$9, which is less than the cost of a new paperback), consumers might one day switch over from paperbacks and hefty hardcovers to a completely electronic library, much like we switched from vinyl record albums to CDs. The thought of this transition makes some book lovers cringe, but nonetheless, it’s an option of the future. eBooks also offer onscreen bells and whistles for enhanced work performance — search a large volume of text for a particular word or idea, change font size for ease of reading, and input your own reference notes.

Adam Rothberg, director of corporate communications at Simon & Schuster, publisher of Stephen King’s original electronic title, *Riding the Bullet*, explains the eBook industry as an “exciting opportunity, but it’s still in its infancy. [It allows the] chance to reach and know our readers on a closer basis than we have before, with possibilities for faster and more efficient distribution.” Most titles show up at



your local Barnes & Noble before they're available in eBook format, but many are released simultaneously with their electronic counterparts. With best-selling authors paying attention to the eBook market — Elmore Leonard and Dean Koontz have also published books specifically for electronic distribution — as well as unknown authors gaining recognition by selling eBooks, the trend is worth noticing.

Tapping In

So how do you successfully access the oodles of available eBooks out there? There are actually several ways, including using an eBook device, your handheld PDA, or reading straight from the Internet on your Mac.

eBook devices are gaining momentum. RCA's REB1100 (www.rca.com), for example, is a fast-selling product. Its price (\$299) is reasonable, its size and weight match that of a hardcover book, and its high-resolution screen is crisper, larger, and clearer than a conventional handheld screen. And it holds 8,000 pages of text — that's fifteen 500-page books! Reading from a dedicated device should feel as close to reading an actual book as possible because its screen strives to cause less eye strain than a computer monitor. The REB1100 predominantly deals with Gemstar publishing (www.softbook.com) for its downloadable content. For additional titles — online retailers of eBook content generally have far fewer titles than a bookstore at your local mall — you can install software from RCA, which allows you to then download titles from Barnes & Noble (www.bn.com) and from Powell's Books (www.powells.com).

At the Darien Library in Darien, CT, patrons can check out a Rocket eBook (www.softbook.com) dedicated device. (Call your local library to learn if it has similar options, if you're interested in a test-drive.) "The Rockets have really taken off, no pun intended," says Linda Fenster, head of information services at Darien Library. "People love to take them when they travel or commute, and a high percentage of Darien residents are

commuters." Popular wait-listed titles at the library include *Memoirs of a Geisha*, *Blind Man's Bluff*, and *Into Thin Air*. Also, in conjunction with netLibrary (www.netlibrary.com), which is a retrieval system for accessing the text of reference, academic, and professional books via the Internet, Darien Library patrons can read materials from the comfort of their personal desktop or laptop computers. From the library's Website, folks can enter a code and connect with netLibrary for quick access to about 750 titles.

The third, and quite possibly the most popular, way to read eBooks is on your handheld PDA.

"Palm Pilot is the absolute bestseller," says Cole. "Palm users are very used to reading magazines and newspapers [the likes of *Newsweek*, *Time*, and *The New York Times*] off their screens, and they expect to be able to read fiction, too." At www.peanutpress.com there are thousands of popular eBooks (starting at about \$5) to download to your Palm organizer. So if you already own a Palm (www.palm.com), check the specifications of your model — you may be able to use it to read more than your to-do list.

School Books

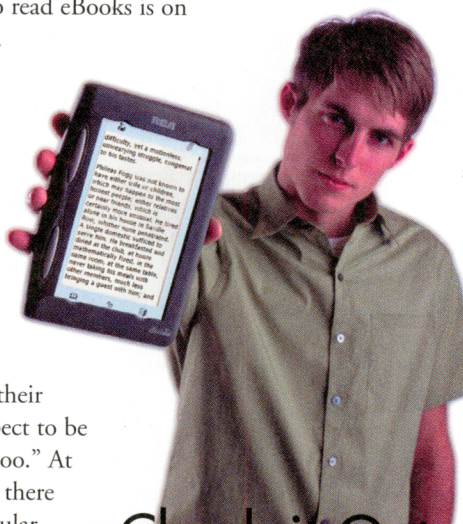
The eBook trend in education differs from the commercial eMarketplace, and is dramatically, albeit slowly, changing the way schools expend their fiscal resources.

Blackboard (www.blackboard.com) is a good example of how eTextBooks are being delivered to student populations. A dot-com company that found a novel niche in the education clique, Blackboard provides a virtual online campus

for schools. Teachers work with Blackboard, which, in partnership with netLibrary's MetaText (www.metatext.com), makes textbooks available in digital format. The top textbook publishers work with MetaText, identifying textbooks they've converted to digital format.

Students log in for class, then purchase and download required MetaTexts to their desktop computer or laptop. This process saves the expense of printing, shipping and handling, and saves forests of trees as well. At about the price of a used textbook, scholastic

eBooks cost less than new books, and they make searching for information easier and add no additional weight to a student's backpack. (You might remember how it feels to carry *Chem 101*, *Complete Works of Shakespeare*,

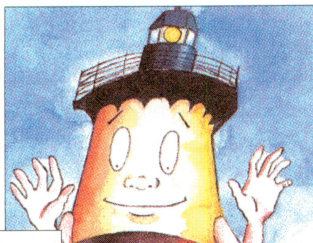


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and *History of the Western World* in your backpack everyday — now consider the alternative!)

Each word in the print edition is in the MetaText, plus additional goodies, including links to Web pages, click-through footnotes, embedded audio files, and dynamic graphics. "In digital format, students find reading and annotating easier and faster," says Derek Pilling, a senior director with netLibrary



The Lucky Little Lighthouse
by
Phyllis A. Hazelet
Illustrations by Jim Rowe

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and MetaText. In the left margin, a reader can keyboard notes with links to any part of the book or Web. In the right margin, notes can come from the author, instructor, or peers in a study group.

eLibrary

Educators and students will find several other resources for eBooks and electronic “print” material. Among the most prolific are Project Gutenberg, The On-Line Books Page, and Electronic Library.

Not all eBooks cost money. With a wonderful selection of classical works and pre-1923 literature, Project Guten-

even Lewis Carroll’s *Alice in Wonderland*, Project Gutenberg is the place to go. At least one new text is added each day.

The On-Line Books Page (<http://digital.library.upenn.edu/books>), similar to Project Gutenberg, is another place to look for books online. Most of these texts are in plain vanilla text, so they are easy to download and read. Since The On-Line Books Page got started in 1993, the selection is smaller than Project Gutenberg’s.

Electronic Library (<http://www.elibrary.com>) is an old standby for teachers and students. While unlimited

access costs \$19.95 a month, schools often get education discounts. eLibrary.com provides access to an amazing array of both fiction and non-fiction books, magazine and newspaper articles, pictures, maps, and radio and TV transcripts.

Experts who research your questions — such as “What kinds of minerals, if any, were discovered in the rocks brought back from the Moon?” — are available for a price, but you only pay if you’re satisfied with the information you get.

Classroom Satisfaction

As eBooks become widely available, and often free, educators will find it easier to individualize a student’s reading. By

identifying reading material that appeals to and fulfills each student’s curiosity, the willingness to read increases. The eBook has an opportunity to make a substantial impact on education as teachers, students, and schools learn to take advantage of the resources available.

Desktop Publishing

There are also numerous resources available for aspiring writers. If you’ve ever thought of getting your own story out there, electronic publishing is an avenue you should explore. Many first-time authors are greeted by shut doors at big publishing houses, but they now have an opportunity to display their work inside the realm of ePublishing. “There’s an exuberance and excitement in this space that feels utterly revolutionary,” says Cole. “Unpublished authors and small presses are empowered by the low cost of production.”

If you’re interested in pursuing this option, the best place to start is the Internet. There are heaps of resources for specific genres, and links to ePublishers. One site dedicated to the promotion of original fiction, for example, is www.bookbooters.com. For general information regarding all facets of writing, including information about self-publishing, take a look at www.inkspot.com and www.spawn.org.

eFuture

At this time, eBooks still have a way to go. “Improved technology, changes in consumer reading habits, and a wider selection of titles all need to come together to bring this sector of publishing to fruition,” says Rothberg. Adds Cole, “eBooks don’t herald the death of print. They will take their place alongside hardbacks and paperbacks as another format, with their own price and feature appeal.”

The choice is yours — how will you turn the pages of your favorite words in the future? Perhaps Linda Fenster’s belief — “nothing will ever replace the book, but there can never be too many options when it comes to reading” — resonates with you. Or maybe you’re excited to embrace the electronic alternative. Me? Well, let’s just say I won’t add that “e” to the beginning of my name ... just yet. **MNJ**

School Books, eLibrary, and Classroom Satisfaction contributed by Cathy Parise.

Did you Know?

The Adobe Acrobat eBook Reader was released for the Mac in January. The free software, available for download from www.adobe.com or www.bn.com, will enable you to read eBooks from your desktop or laptop Mac.

berg’s (<http://promo.net/pg/>) goal is to make texts free to everyone. You won’t find bestsellers of the late-20th century, but if you want the text of Homer’s *The Iliad*, Shakespeare plays, Sir Arthur Conan Doyle’s *Sherlock Holmes* stories, Edgar Allen Poe or Dante works, or

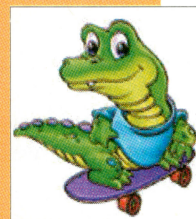
Electronic Company

By Carolyn Blackburn

SchoolZone Interactive and On-Track

Software recently introduced

four new titles in the acclaimed Electronic Workbook series: *Beginning Sounds* (reviewed on page 80 in this issue) for preschoolers, *Reading Readiness K-1*, *Math 1*, and *Math 3*, for first and third graders respectively. The series has successfully intermingled SchoolZone's popular workbook



content with computer interaction to benefit kids in and out of the classroom. Each Electronic Workbook features exercises for target subjects in an easy to learn and fun environment, as well as games sandwiched between the learning for R&R (which stands for Reward and Recess in kid language).

www.schoolzone.com

Tell Us What You Think!

MacHome likes to hear from our readers. Take a few minutes to let us know what you think of this issue, as well as what you'd like to read about in the future. Don't forget to mention the titles you'd like to see reviewed.

Visit us at www.machome.com/aprilfeedback.

MacPub

MacSoft plays a huge role in bringing quality entertainment titles — *Scrabble*, *Unreal Tournament*, *Links LS 2000*, and *Driver*, among others — to the Mac. Recently, though, the company has branched out and released Mac Publisher Pro, a new and improved version of Mac Publisher. This desktop publishing solution, developed by Metis International, allows Mac users to create professional quality brochures, newsletters, books, and more. Mac Publisher Pro promises a user-friendly interface and easy-to-use tools for high quality production from the comfort of your home.

\$40, www.wizworks.com/macsoft

Play Guitar

eMedia Music, publisher of the Guitar Method series of instructional CD-ROMs, will release Bass Method Tutorial this month. For those who want to learn guitar or bass guitar, an

eMedia title will act as your very own teacher. No need to pay a sizable fee for beginning lessons when you can count on one of these titles and your Mac. Bass Method Tutorial offers eMedia's groundbreaking animated fretboard and step-by-step lessons performed

by professional bass instructor John Arbo, who's performed with Les Paul, among others. Also check out Blues Guitar Legends, which teaches classic blues songs, such as B.B. King's "The Thrill Is Gone."

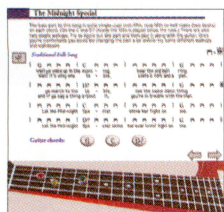
www.emediamusic.com

Senior Sources

Check out Grand Times, a weekly online magazine dedicated to "serving savvy seniors." Complete with articles applicable to the lifestyles of seniors, a comparison

shopping and gift guide, travel tips, links to other Websites, and more, this site's worth a look.

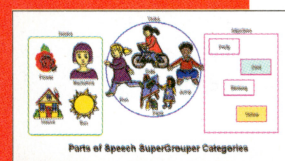
www.grandtimes.com



Kidspiring

Inspiration Software has a new title called Kidspiration, which was developed for K-3 classroom teachers.

The title is separated into two integrated sections, Picture View and Writing View, and helps kids with early reading and writing skills. The exercises help students to develop visual concepts and to then expand those ideas into the written word. The program also features an interactive drag and drop tool called SuperGrouper, which groups and rearranges thoughts and symbols for interactive learning. With 45 built-in student activities and an Activity Wizard that lets teachers create and modify activities to support specific lesson plans, the software is available for \$69, \$310 for a five-computer license, and \$895 for a twenty-computer license. www.inspiration.com



driver-ZED

Years ago, a wise driving instructor told me to “look at the big picture” when behind the wheel of a car. A metaphor for life, really. And a lesson that stuck. Unfortunately, a lot of kids miss this message during their driver’s education training. But it’s one that comes across loud and clear during *driver-ZED* (zero errors driving), a title designed for use in conjunction with formal driver’s-ed sessions to prepare kids for the open road.

Hosted and narrated by four fetching teens, the program places its “drivers” in the hot seat. The interface garners attention without unnecessary perks that might distract kids from the task at hand: Learning skills for safe driving.

An ongoing score is administered depending on player reactions to various driving scenarios, including On the Highway and Around Town. All testing modes — Scan, Spot, Act, and Drive — champion the importance of awareness when driving, such as noticing speed limits, surroundings in the side and rearview mirrors, and pedestrians. Act mode, for example, has



rating 

AAA Foundation for
Traffic Safety
Teenagers, \$28
800-305-7233
www.aaaftr.org

players choose when to stop the scene to take a different, safer, course of action. Some tests, though seemingly easy, will prove daunting if kids aren’t paying close attention.

It’s difficult to find fault with such an innovative title, but alas, it isn’t perfect. Throughout, its narrators constructively respond to cor-

rect and incorrect answers/reactions, but there’s room for additional safety suggestions. More than “Break and hope the tail-

gater is paying attention” — advice given for drivers who find themselves boxed in between a tailgater and a car that’s slowing down in front of them — they might also have suggested using the horn to alert both drivers. No? Also, the overall test only takes about 2 1/2 hours — for the price, a few more miles of testing would’ve been great, but kids eager for a higher score can always try again.

For the safety of your child, and for the sake of the big picture, *driver-ZED* is worth checking out.

— Carolyn Blackburn

On-Track Beginning Sounds

As well as consistently creating edutainment to beat the band, SchoolZone has gone ahead and redefined the word adorable. *Beginning Sounds*, one of 12 titles from the On-Track series of electronic workbooks introduced last year, is a jamboree of characters, colors, and amusement that’ll have youngsters squealing with delight. Rest assured, they’ll learn too.

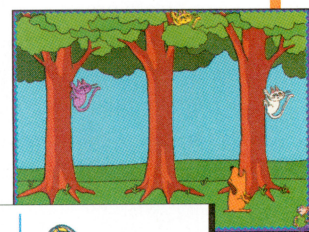
The title is full of exercises that will familiarize pre-readers with the alphabet by introducing them to the sounds of first letters of words. The exercises test your child’s ability to

identify beginning sounds by matching pictures and letters. This CD-ROM doesn’t teach kids how to read, per se, but it brilliantly sets the stage — the drills work on letter recognition, which will help any child learn how to read when the time comes.

Beginning Sounds is perfect for its targeted age range because it offers simple prompts and it doesn’t strain young hands with unnecessary mouse gymnastics. Kids only need to point and click to choose the correct answers. They’re asked to click on two of five pictures that begin with the L sound, for example, including a ladybug, a fan, and a lamp. Likewise, when they play one of three rotating games between exercises — including the funny dog and cat game, wherein kids control the dog’s barking to keep cats up in trees — they’re not required to perform more than simple mouse movements and clicks.

The program is packaged with a bonus paper workbook for additional testing, minus audio guidance. With incredible replay value, positive reinforcement, and opportunities to correct mistakes, *Beginning Sounds* deserves more than a few shakes of a tambourine.

— Carolyn Blackburn



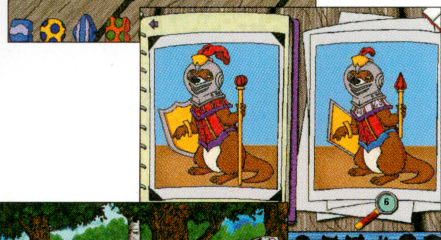
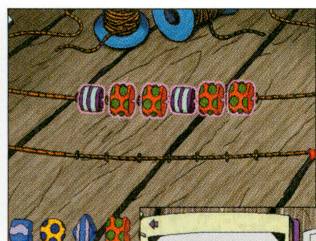
rating 

SchoolZone Interactive
Ages 3-5, \$20
800-253-0564
www.schoolzone.com

Franklin the Turtle Clubhouse Adventures

Franklin the Turtle Clubhouse Adventures is a solid, snappy title that invites kids into the world of Franklin and his playmates, including Snail, Sir Fox, and Bear. Color matching, pattern recognition, and visual discrimination skills are stretched through a series of games that also engage the imagination.

A guaranteed favorite is a puzzle in which each pair of images has ten details that don't match. Finding and clicking each difference until they're the same can take a while, like the old *Highlights* magazine puzzles, but it's



rating ★★★★★

Knowledge Adventure
Ages 4-7, \$20
877-508-1124
www.education.com

fun. There are seven activities with three skill levels, so there's a decent amount of replay value. Kids can do the activities in any order, which encourages exploration of the secret clubhouse.

One of the best features is *Clubhouse Adventures'* educational value. For instance, one activity asks players to fit together the pieces of ten dinosaur skeletons.

After each one is finished, the player hears a couple of facts about the dinosaur and can then print out a dinosaur card that shows the skeleton along with its facts. How cool is that? The scrapbook also has simple craft instructions, such as how to make a castle out of a box.

Mistakes are greeted gently and encouragement is given whenever players make the right move. Kids earn a badge when an activity is completed, which makes a nice record of what they learned. The only downside to *Clubhouse Adventures* is repetition. Some activities drag — like sailing boats across a stream fifty times — thanks to little variation in sounds and graphics.

Overall, *Franklin the Turtle Clubhouse Adventures* is a great choice for younger kids.

— Sandy Brundage

ClueFinders Search & Solve Adventures

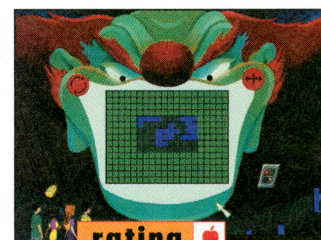
A lot of effort obviously went into making this game appealing. The graphics are gorgeous and so is the voice-acting. It's like a "Scooby Doo" cartoon. And once the team of five explorers breaks into an eerie amusement park to solve a mystery, the story is almost enough to overcome the game's major problems. But instead, the story is just a distraction from the title's serious flaws, like repetitious puzzles that may or may not be solved and an interface that blocks progress rather than simplifying navigation. The result of these shortcomings is a game to avoid.

The puzzles demand skills like pattern recognition and logic. However, a solution may look right, but not actually solve a puzzle. For example, one puzzle requires lining up tiles to make a bridge. I found two solutions, but only one worked. There's nothing more frustrating than looking at a solution that appears to follow all the rules yet remains ineffective for some unknown reason. To make matters worse, kids will have to solve this puzzle three times to finish the game, so they'll repeatedly wonder why they can't move on when the puzzle looks complete. This frustration will discourage kids from playing through the entire game. In fact, some kids may feel ready to quit playing after five minutes.

The haunted maze puzzle is also tedious and aggravating. While steering a buggy around the maze using the arrow keys, only a quarter of it is visible at a time, making it impossible to plan where to go next. And the interface is quirky — many times the buggy sat in the middle of the road, apparently clear of the walls, but couldn't move.

Since the only worthwhile parts of this title are the animated cutscenes, spend your money on a Disney movie rather than on this game. A game should engage and challenge kids, not leave them with the urge to chuck the monitor out the window because of design flaws. Overall, the repetition, aggravating interface, and unreasonable puzzles drop this *ClueFinders* title into the 'don't buy' zone.

— Sandy Brundage



rating ★★★★★

The Learning Company
Ages 9-12, \$25
800-358-9144
www.learningco.com

The Mod Squad

Small Downloads to Make Your Games Last Longer

Expansion packs, such as *The Sims: Livin' Large*, stretch a game's value, but they usually cost money. Mods, on the other hand, usually don't. A mod — short for modification — is any scrap of software that enhances a game.

Mods come in four flavors: maps, skins, cheats, and Total Conversion Packs (TCP). Maps add levels or tweak existing ones to fit a new theme. Skins change the look of a game's characters, and TCPs completely revamp the game with new physics, music, levels — you name it. Cheats can instantly make your character powerful or even rain down otherwise rare items on every corner of a map.

By Sandy Brundage

I crawled the Web for some ideas to get you started, so read on for a sample of the mods available for six popular games. You can download the files mentioned below at www.macgamefiles.com or www.downloads.com.

Getting In On the Action

Rune, the hack-and-slash Viking creation from Human Head Studios, already has a mob of mod creators in the Mac community.

Rune Bonus Deathmatch Map Pack (537k): Human Head delivers two more levels of deathmatch carnage.

DM— Deep Under (484k): Another bonus from Human Head, *Deep Under* lets players kill monsters to get better weapons and power-ups.

MickMaps Rune Pack (1MB): Here are two deathmatch maps, including Rotarena, which has a rotating arena.

Deus Ex, the roleplaying action thriller from Aspyr, comes crammed with hours and hours of gameplay. But if that still isn't enough, here are its most popular mods.

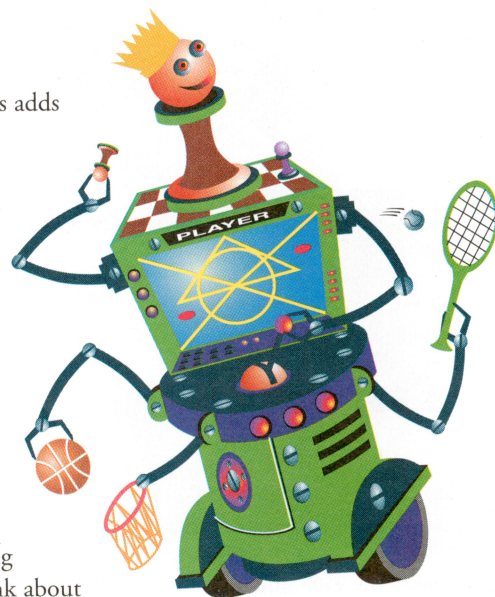
DTR I (8k): This adds stun darts, exploding darts, and timed exploding darts to use with a modified crossbow to JC Denton's arsenal.

DTR II (8k): Give the bad guys something painful to think about by adding proximity LAM darts, proximity gas darts, and proximity napalm darts, along with a modified crossbow, to JC's weapons collection.

DTR III (39k): One shot from this freeze gun and you'll stop the enemy in his tracks.

DTR IV (12k): This mod tosses a grappling gun into JC's inventory.

Deus Ex Matrix Mod (13k): This mod not only slows down the bad guys, it also makes JC sprint faster and leap higher. It will use up the leg augmentation slot, though, so you can't run it if you've already applied a leg augmentation.



Making Old Games Like New

Old games are also getting the mod treatment. Shooters



JC Denton's LAM darts stops the bad guys in their tracks.



Quake III Arena and *Unreal Tournament* have been out for a while, but people keep on playing because there's always a new weapon or map to try out.

Infiltration 2.82 (40MB): The mother of all UT mods, *Infiltration* from Sentry Studios overhauls all of the original weapons for realism, then tosses in five new player classes (like CounterTerrorist), three new game modes, and better computer-controlled opponents. How much does it cost? Absolutely nothing.

Unreal Tournament Bonus Pack (14MB): Thanks to Epic Games, 10 new maps, 2 new characters, and updates to the Lament and Facing Worlds maps make this one of the most popular UT mods.

Unreal Tournament Utilities 2.5.1

(438k): This program keeps mods organized and eases installation. The bundle includes a cache cleaner, installer, uninstaller, and file converter. Between those four programs, you'll be able to swap maps with a click.

Eternal Arena 3.4 (1.7MB): A lot of features crammed into a small package, *Eternal Arena* for *Quake III* flaunts seven game mods, ranging from Telefrag to Low Gravity, and improves the game's interface by tweaking map selection and camera controls. Other new toys to sample include rocket jumping and player cloaking. Think of *Eternal Arena* as a mix of *Quakeworld*, *Quake II*, and *Unreal Tournament* with *Quake III*.

Weapons Factory Arena 2.1 (85MB): This large *Quake III* mod from Weapons

Factory Software comes packed with 8 new classes, 30 weapons, and the ability to deploy tactics like decoys. The mod's new features and heads-up display make for a steep learning curve, though, so don't expect to jump into a multiplayer game right after the download.

Quake III Radio 1.1 (3MB):

Think of having a tour guide built into *Quake III*. This mod plays messages at key points in the game that help you finish the level in one piece.

MacQuake AutoTypers 1.0 (46.8k): This is a handy utility that converts PC *Quake* maps and packs into Mac format, letting you try out even more mods.

Simulating Mods

Just in case you thought only shooters got the mod action, there's a toybox of mods for *The Sims*, too. Besides *Living Large*, *The Sims* gets regular infusions of fresh faces. You can have Gillian Anderson and John Travolta hanging out in front of Jim Carrey's velvet Elvis painting to discuss prospective careers as Mad Scientists, if you combine the expansions with a few fan-made additions. At Aspyr's *Sims* page (www.aspyr.com/mini-sites/sims), you'll find an ever-growing list of goodies to download, including several skin packs. **MHJ**

Cheat Sheet

Deus Ex can also become a bit easier. These cheats will work on any difficulty level except Realistic, and they'll work on saved games as well as new ones. Follow these steps:

1. Go to the main *Deus Ex* folder on your hard drive and find the "User.ini" file. Double click to open it.
2. Using the Find command, locate "NumPad0." Change it to "NumPad0=talk." Now Find "NumPad1." Change that to "NumPad1=set DeusEx.JCDentonMale bCheatsEnabled True."
3. Save the changes and close the file.
4. Start the game.
5. To use a cheat, hit "1" and then "0" on your keyboard. Delete "say"
6. Now you can



help yourself out of a tight spot like this:

- a. Type "god" to make JC Denton invincible
- b. Type "allammo" to refresh JC's ammo supply
- c. Type "allhealth" to bounce back to 100% health
- d. Type "augadd xxxx" to gain augmentation x; xxxx can be "augstealth" to sneak past enemies; or any other augmentation you find in-game.

There are many more cheats that follow these basic patterns; have fun exploring the possibilities.

Check It Out ...

To explore the mod, mod, mod world, check out **www.macgamefiles.com** and **www.downloads.com**. These two sites stay up-to-date and make it easy to sort out Mac mods from PC mods. **Next month, we'll take a look at how to create your own add-ons.**

Mac Galaxy

MacSoft, Mac game publisher extraordinaire, is the apple of the industry's eye. 2000 marked the fourth consecutive

year that the company has sold more titles than any of its com-

petitors, capturing one-third of the market. With no slowing down in sight, next up, MacSoft will bring *Master of Orion III* to your Mac. The popular strategy game will be developed simultaneously with its PC counterpart (woo-hoo!) by Quicksilver Software. Due out during the first quarter of 2002, the game will place players at the head of a galactic empire, complete with quests, social orders, characters galore, and a cornucopia of story elements.

www.wizworks.com/macsoft

D2X

Fans of Blizzard

Entertainment's *Diablo II* — prepare to rejoice. *Diablo II: Lord of Destruction* expansion pack is due during the second quarter of this year, which means soon. "Diablo II is about kill and reward," says Blizzard's Brian Love. "So *Diablo II: Lord of Destruction* means more to kill and more rewards." The pack will include a new charge-up skill that increases the power of effects during gameplay, as well as new magical items, such as charms, to add to your inventory. Nothing like expanding on greatness.

www.blizzard.com



By Carolyn Blackburn

Tell Us What You Think!

MacHome likes to hear from our readers. Take a few minutes to let us know what you think of this issue, as well as what you'd like to read about in the future. Don't forget to mention the games you'd like to see reviewed, and which you'd like to see in the spotlight of our monthly Cheat Sheet.

Visit us at www.machome.com/aprilfeedback

Don't Mess With Texas

Our friends in Dallas are at it again. GraphSim

Entertainment delivered the wildly popular *Baldur's*

Gate last year, and prepares to deliver the guaranteed smash hit *Summoner* sometime during 2001. A

third-person fantasy role-playing game, *Summoner* places you on two continents —

Medeva, which is similar to medieval Europe, and Orenia, which is influenced by Asia — with distinct creatures and characters for a unique and varied game experience. During the real time combat, Joseph, the main character, has the ability to summon

creatures, including red minotaurs and stone golems, to assist him in battle. Prepare your Mac for heaps of spells, weapons, and monsters.

www.graphsim.com

We also have buddies in Austin. You know those Aspyr kids. They're working on *Tony Hawk Pro Skater 2* for the Mac, which is currently in conversion by Westlake Interactive, and will be released later this year. The title — think the X-Games — promises an authentic extreme sport experience, complete with a hip hop and punk soundtrack. Players can gear up to skate as the legendary Tony Hawk or any of 12 other skateboard pros, or they can create a personalized pro from the wheels up.

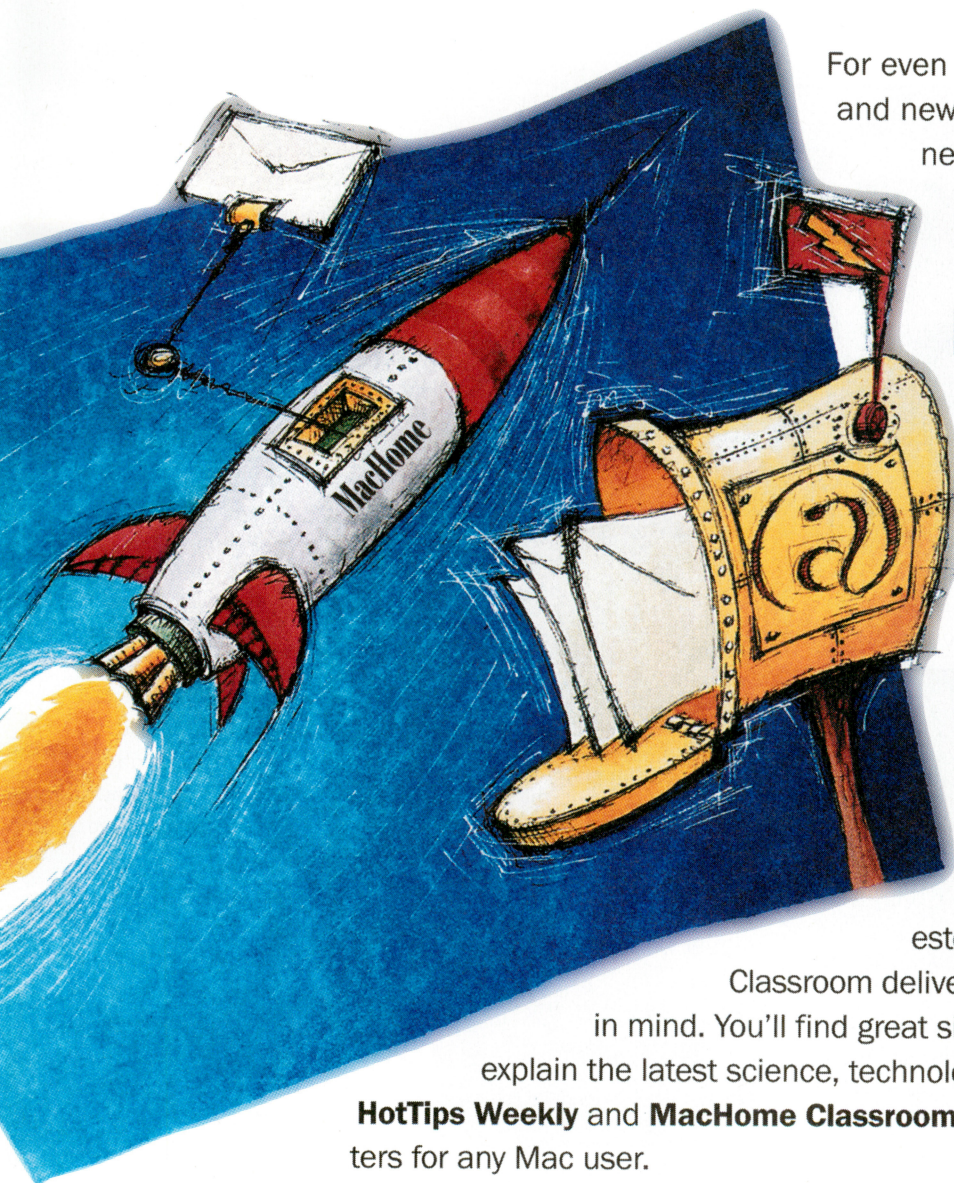
www.aspyr.com



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Oni

Anticipated for years, *Oni* has finally hit the shelves, and it delivers the kinetic gameplay that is missing in most action games. As the femme fatale, Konoko, you'll careen off enemies, roll down stairs, and bound across rooftops with animé flare. The fun of these acrobatics is enough to overlook the shortcomings of the game; the level design is uninspired and some parts of the game are difficult enough to frustrate experienced players.

At its base level, *Oni* is about action. Uniquely combining fanciful martial arts with gunplay, you'll have many ways to defeat your enemies. Handle the movement with the keyboard and punch or kick with the mouse (a two-button mouse is recommended). Chord two keys at once or push several in succession to execute throws, rolls, flips, and other intricate maneuvers.

With a third-person view, you can see Konoko move through the game. If you're backed into a corner, the walls become transparent, providing a complete view of the action at all times.

Liberal borrowing from animé, with bold colors and Japanese flair, *Oni* provides

Even the story resembles animé; throughout the game, the plot is at times clever, predictable, or confusing, but it's always entertaining. Interact with bystanders and hack computer terminals to slowly learn who you are and who's working against you. Grand cut-scenes between moments of action further develop the story.

Oni does have some problems. The intricate action comes at a cost; if you're not coordinated or you don't want to spend time learning the game, *Oni* will frustrate. Even after discovering

how to pull off the complicated moves (like precise timing of left, forward, and kick — think Nintendo-style fighting games), some areas are too difficult. When swarmed by a barrage of guards, it may take a dozen or more attempts to dispatch them. To add insult to injury, there is no option to save the game except for at sporadic,

automatic points; if you can't quite make it to a prescribed save point, the game starts you back at the previous point.

The level design grows repetitious. Progression is based on finding the appropriate computer terminals to open a locked door, moving beyond that door, and looking for

more computer terminals. Even though you can use somewhat nonlinear ways to get between terminals — like choosing between a window and a corridor — these objectives are tiring.

Even though *Oni* packs terrific action, it should have included more thinking. At times, the game gets exhausting

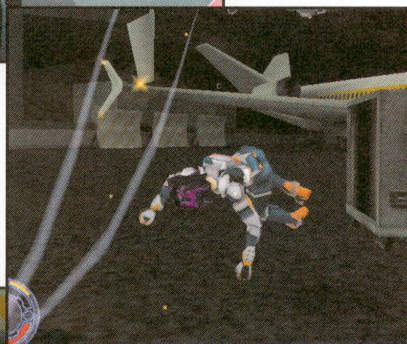
because of frequent hostile encounters. Spacing these moments apart would have made them more exciting.

Shortcomings aside, this is a powerful game. It adds innovations like effective third-person control and kung fu action to an established genre. *Oni* gives the ability to star in your own animé production complete with pyrotechnics and odds-defying victory.

— Zack Stern

rating 

Gathering of Developers
\$40
800-211-6504
www.godgames.com



Cheat Sheet

Oni can be tough. Here are some tips to get going.

Assess your situation: Konoko can overpower gun-toting goons, but only if you get to them quickly. Disarm the guards and stay between them and their weapons.

Save your ammo: There isn't a lot to pick up — use it as a last resort when your health is low.

Dodge frequently: Push duck and left (or right) to roll laterally. Combine this with a jump to avoid most weapon fire.

unmatched aesthetics. Lighting and textures match the mood, and sound effects give depth. Just when buildings start to look alike, an incredible dream sequence breaks the monotony, complete with convex walls and swirling clouds. While it's not strong enough to stand alone, the music complements the atmosphere that the visuals create.

Sim Theme Park

Sim Theme Park offers players the opportunity to build and control their very own amusement parks from the dirt up — master the park's design, employees, and the happiness levels of its visitors. The gorgeous graphics and extra imagination — you won't likely find these eccentric rides and attractions in the real world — will engage players for hours.

Like Disney World or Six Flags Great Adventure, fun is monitored by money. In order to keep the park up and running, players

must track how much money they have, make, and expend. Play in either Instant Action Mode, which has a pre-built park and staff, or in Full Simulation Mode, which has an empty plot of land until you breathe life into it.

From the control panel, which looks like a toddler's walkie talkie, you'll find everything you need — information about your employees and finances, a map viewer, and a research lab. The game's challenge lies in how well you manage the needs of your park: Hire a janitor

when garbage cans start overflowing, build enough staff rooms for weary workers, employ

researchers to upgrade rides, and install snack and gift shops for extra revenue, among many others.

Like cotton candy, there's sticky with the sweet. You must make paths connecting from one attraction to the next, which proves frustrating. There are many areas where you think you can build a path, but you're not actually able to do so. And the first-person perspective on the rides, which I thought would be a highlight, is anticlimactic at best. Background scenery scrolls by, but it doesn't feel remotely close to the real thing.

Overall, control freaks and amusement park fanatics will enjoy *Sim Theme Park*.

— Carolyn Blackburn



Aspyr
\$35
888-212-7797
www.aspyr.com

Sin Gold

As a one-man task force, you've got to dispatch criminals on your way to stopping Elexis Sinclair from controlling society. Unfortunately, *Sin Gold* doesn't pack as much punch as the premise. The good news about *Sin* is that the *Wages of Sin* expansion pack is included. The bad news is that you might lose interest in playing the whole game.

Like other first-person shooters, you pick up weapons to destroy any criminals that

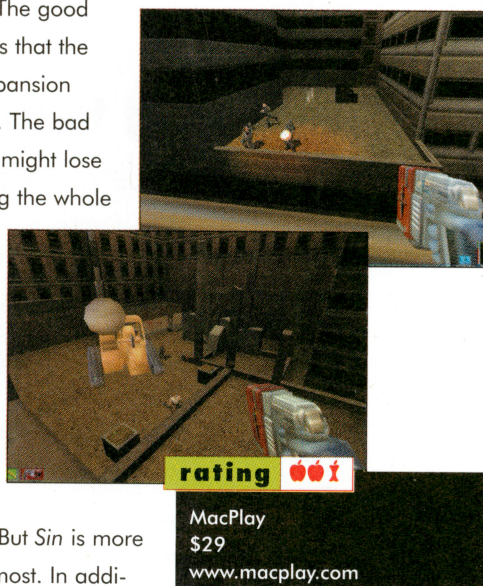
get in your way. But *Sin* is more gratuitous than most. In addition to gory animations, you'll encounter calendars showing scantily clad women and characters with dimensions that surpass Laura Croft. If these items were presented in a more satirical light, *Sin* would be much more enjoyable.

While controlling your character's movement is pretty basic, you'll face difficulties in tight areas. Precise movement is difficult when traversing ledges or other precarious points. The level design is similar to other games of this genre. You'll typically face the same kinds of goons over and over while looking for keys to open doors. There's not a lot of variety to find.

The value of *Sin* is, ironically, its best asset. With online competitive play and the included expansion pack, you could play for quite a while if you get into the action.

A slightly dated game, *Sin* will run on most systems. If your Mac can't handle other shooters, *Sin* may be your best option. However, if you're looking for a game that offers originality and doesn't cater to an adolescent mindset, keep looking.

— Zack Stern



MacPlay
\$29
www.macplay.com

Ware Aware

A Look at the Many Forms of Software

Computing terms can confuse any user. "Software" is a general expression used to describe programs created to perform specific tasks within your computer. But, software has several variants with slight differences.

Different classes of software are named by replacing the prefix with something slightly more descriptive; for example, shareware, freeware, and firmware. It's clever, but not always enlightening. Let's take a closer look at these and other terms.

Shareware

This strain of software is perhaps more aptly titled trialware. The shareware author invites you to try an application or utility free of charge. Should you grow fond of the software and use it regularly, you are obligated to pay the author a small fee for its use. Payment is encouraged through several techniques that vary from application to application. In most cases, the shareware author will allow

By Chris McVeigh

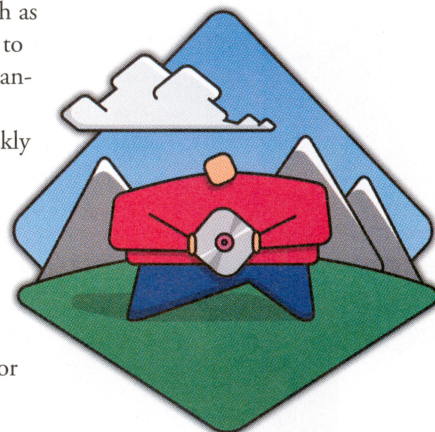
you to use the software for a fixed period of time (say, 15 days). After the trial period has concluded, the application may pause at startup for 10 to 20 seconds, giving you ample time to get acquainted with the application's cost and the accepted methods of payment.

Shareware authors pour a lot of resources into the development of their products, and they deserve to be compensated for their efforts. Popular examples of shareware include Aladdin's DropStuff, Freeverse's Burning Monkey Solitaire, and Ambrosia's Snapz Pro.

Freeware

As the name implies, the software developer does not seek any compensation for their efforts. Although it often takes the form of simple utilities, desktop pictures, and fonts, high-profile examples of freeware include Apple's iTunes, Aladdin's Stuffit Expander, and Adobe's Acrobat Reader. Why give your product away? For many smalltime freeware authors, it's to build a reputation. There's no better résumé than a tightly coded, must-have utility. For large

publishers such as Microsoft, it's to encourage a standard. The company quickly undermined the dominance of Netscape Navigator by offering Internet Explorer for free.



Postcardware

Freeware with one small catch: the author specifically requests you send a postcard if you use the software regularly. It's a way for the author to solicit feedback and gauge the popularity of their product.

Vaporware

This term is used to describe software that fails to materialize. Occasionally, a developer will tout the virtues of an application in development to gain media attention and attract investors. Significant roadblocks may crop up during development, however, sidelining the project and eventually forcing the publisher to abandon it.

Firmware

Inside some hardware components of your computer, such as your CD or DVD drive, there are small blocks of memory containing programming code that tells the equipment how to operate. This code is referred to as firmware. Apple occasionally releases firmware updaters to improve the performance of certain Macintosh systems. **MHJ**

Classic, Carbon, and Cocoa

A Look at Mac OS X's Three Application Programming Interfaces

Now that Mac OS X has finally arrived, you'll be hearing a lot about Classic, Carbon, and Cocoa. Each of these is an application programming interface (API) used by developers to create software applications for Mac OS X.

Classic

Mac OS X's Classic programming interface maintains compatibility with the thousands of existing applications that run smoothly on Mac OS 9. Classic applications are actually opened and operated in an implementation of Mac OS 9. Launch a Classic application in Mac OS X, and the operating system loads Mac OS 9.1 into a dedicated block of memory. Although fully integrated with Mac OS X's Finder, applications run inside this environment retain Mac OS 9's platinum interface and do not benefit from Mac OS X's advanced features, such as protected memory. Should a Classic application crash, Mac OS 9.1

By Chris McVeigh

(and any other open applications in the Classic environment) grinds to a screeching halt. Mac OS X, however, will simply shrug off the crash and go about its business.

Carbon

Carbon is designed to bridge the gap between development of Classic applications and Cocoa applications. The key strength of Carbon applications is their ability to run natively on both Mac OS 9 and Mac OS X. Carbon uses a library of programming interfaces derived from earlier versions of the Mac OS. These revamped APIs allow Carbon applications to take full advantage of key Mac OS X features such as protected memory. Think of it as fences put up around the memory by each open application. A crash of a Carbon application does not cause a crash of the entire system; in most cases, the application can be relaunched immediately, and work can continue immediately.

Carbon is a blessing for developers, allowing their software engineers to develop for Mac OS 9 and Mac OS X at the same time. It also allows the developer to port existing applications to Mac OS X (or Carbonize, as Apple likes to call it) without having to rebuild the application from scratch.



Cocoa

Mac OS X's Cocoa programming interface is an advanced object-oriented development platform. Its strength over Carbon lies in the sheer speed of software development. Consider this real-world analogy. The standard way to build a house is board by board, nail by nail. This is akin to software development with Classic and Carbon. Now let say you could build a house in sections — the kitchen, for example, would be an individual module. Construction of the house would proceed at an incredible rate. This is akin to object-oriented development with Cocoa. Instead of creating software from scratch, developers create it with pre-existing modules. The only caveat of Cocoa development is that applications must be rebuilt from the ground up. In many cases, this will take a developer significantly longer to accomplish than simply Carbonizing its existing applications.

Cocoa, like Carbon, supports the full gamut on Mac OS X technologies. A crash of a Cocoa application does not cause a crash of the entire system. Cocoa applications require Mac OS X, however, and consequently cannot run under Mac OS 9.1 or earlier versions of the Mac OS. **MHJ**

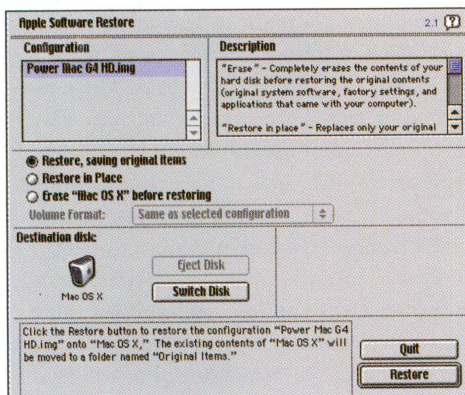
Restore Bookmarks, Firmware Update, and Top Print Quality

QI recently decided I needed to reinstall the Mac OS by performing a Restore, Saving Original Items. After removing the disk, everything seemed to work fine except that I may have lost all of my Internet Explorer Favorites! I must note that I did not lose my Netscape Bookmarks. Please tell me they are still somewhere on my hard disk!

— Chuck Parsons

AYour Internet Explorer Favorites are still safe and sound on your hard disk. Explorer stores its Favorites within the System Folder's Preferences folder. When you opted to perform a Restore in Place, absolutely everything was moved into a folder named Original

By Chris McVeigh



Items. This included your original System Folder and the Explorer preferences within it. The installation procedure put in place a new System Folder — one with its own Explorer preferences. Thus, when you next launched Internet Explorer, it read the

new preferences within the new System Folder.

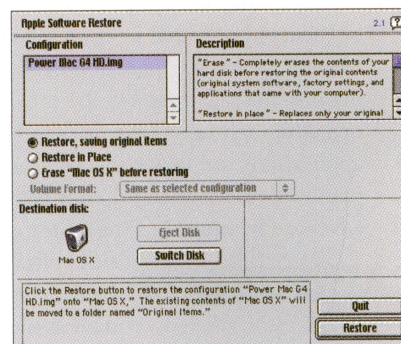
Thankfully, it's a rather simple procedure to restore your Explorer Favorites. First, make sure Internet Explorer is not open. Now open the Original Items folder on your hard drive, and locate the System Folder within it. Inside that folder, you'll find a Preferences folder, and within that, a folder called Explorer. Drag the Explorer folder to your desktop. Next, double-click on your hard disk icon and locate the currently active System Folder. Open it and find the current Preferences folder. Now drag and drop the Explorer folder from the desktop to the new Preference folder. A dialog should ask if you want to replace the file. Click OK. The next time you launch Internet Explorer, you'll find it in exactly the same state you left it in before you chose to Restore, Saving Original Items.

QI have an iMac (333Mhz), and I'd like to replace Mac OS 8.5.1 with Mac OS 9.1. When I put in the Software Install CD, it warns, "Your Mac's firmware is out of date. Firmware updates can be found in the CD Extras folder on your Mac OS CD." Unfortunately, I cannot find the update anywhere on the CD! Can you help me locate it?

— John Weismiller

AAlthough I cannot specifically tell you where to locate the update on your Mac OS 9 CD (the disc varies from computer to comput-

er), I can point out where you can find it online. Go to www.apple.com and click on the Support tab in the top right. Once the AppleCare Support page appears, click Downloads in the pink navigational bar. You can now perform a search for the words "iMac firmware" in the first text field. You're looking for iMac Firmware Update 1.2, Its direct address is



<http://asu.info.apple.com/swupdates.nsf/artnum/n11177> (1062k). Download the update and follow the instructions carefully. Once your computer has restarted, you're ready to install Mac OS 9!

QI am about to get a second-hand iMac to replace my old Performa 6400. What would be the best way to transfer files from my old computer to my new iMac? Since there is no floppy drive on the iMac, and I do not own a Zip drive or the like, I'm wondering if there is an easy way to just connect the two computers directly and transfer the files. Is this possible?

— Dave Caron

Although it is possible to connect your Performa 6400 to your iMac, it comes at a cost. The Performa 6400 does not have onboard Ethernet networking. It relies on its now-antiquated LocalTalk ports to communicate with other computers on a network. The iMac, in contrast, eschews the LocalTalk port in favor of a standard Ethernet port. So, you will need to purchase an Ethernet card for the Performa to connect the two computers. Two different types of Ethernet cards are available for the Performa 6400: a comm-slot card (\$75), and a standard PCI card (\$45). It would be wise to opt for the cheapest solution, since you intend to set the Performa aside once you collect your data. You'll also need to purchase an Ethernet cross-over cable (\$10) that allows you to connect two computers together without requiring a separate Ethernet hub. Once the card has been installed and the cable strung from one computer to the other, look to your Performa manual and follow the step-by-step instructions to share its hard drive.

Give this option some careful thought. One has to question the wisdom of investing money in a computer you do not intend to use. A VST USB floppy drive for the iMac now retails for \$75 (www.smartdisk.com), just \$20 more than the Ethernet card and cable for the Performa. The transfer would certainly be slow and tedious with floppies, but you could continue to use the floppy drive long after the initial transfer of data.

have questions?

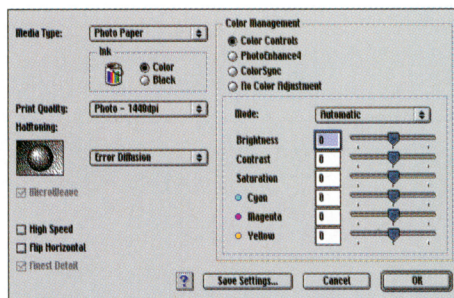
Got a Mac problem that's driving you nuts? Let us take a crack at it. We'll answer questions of general interest to all readers. All mail is assumed intended for publication, and we reserve the right to edit questions for brevity and clarity. When sending your questions, include your full name and phone number. Send your questions to:

questions@**machome.com**

QI have a new Epson Stylus Color printer. Although I've seen examples of excellent color output from the printer, I just can't seem to get those results myself. The print either looks a bit blurry or grainy with none of the pristine shine of the samples I've seen. Can you help me?

— Don Bergman

A Inkjet printers require specialized paper designed to absorb ink correctly without bleeding or warping. Ensure that you are not using standard Xerox paper with your Epson Stylus, since this almost always leads to ink bleeding and blurry images. At minimum, you'll need to purchase standard inkjet paper from your local office supply store (simply look for inkjet compatibility). There are several other types of paper available to you, many of which are offered by Epson. These include photo-quality inkjet paper, heavy weight matte paper, and photo



paper. You'll find you get the best results with high-quality photo paper.

The next consideration is resolution. The higher the resolution, the better the output, right? Not quite. Extreme resolutions are actually dependent on the quality of the paper you use. Use the printer's highest resolution on plain inkjet paper, and you'll find the output blurry and warped due to the excess ink it has been forced to absorb.

To print your photos at the highest quality, purchase a package of photo paper. Although it's more expensive than standard paper, the results will speak for themselves. Prepare your photo in the computer and select Print from the file menu. In the Epson printer dialog, locate the Mode box. Click the Custom option, and then click the "Advanced..." button

Quiz

MacHome

Whether you've forgotten more about the Mac than most people know or you're new to the computer, it's fun to test your memory. Here are ten questions with answers that will leave you with a few more tricks up your sleeve. And if you have questions for us, please send them to letters@machome.com! We love getting stumped.

1. How can you move the Control Strip to a new spot on the desktop?
2. Name a quick way to find out the total playtime of an inserted audio CD.
3. What is a "clean install"?
4. How can you play a movie backwards in QuickTime 4?
5. What is a "codec"?
6. True or false — The "image sharpening" option in your photo editing software can make an out-of-focus digital image snap into focus.
7. How can you make a video play faster than usual in iMovie?
8. What are two keyboard commands to quickly stop a page from loading in Internet Explorer 4.5 and 5.0?
9. How can you pause, then resume playing, a QuickTime movie using the keyboard?
10. How can you skip 10 frames forward or backward in iMovie?

Answers on page 103

that appears to its right. A new window appears. Select Photo Paper from the Media Type pop-up menu, and then select the highest resolution available to your printer from the Print Quality pop-up menu. Next, choose Error Diffusion from the Halftoning pop-up menu. Finally, click on the MicroWeave option (if available) and click off the High Speed option. Click OK, insert your paper, and then press Return to print.

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- * Carl Zeiss Optics

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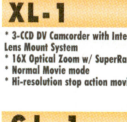
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- * Photo mode captures a still image with seven seconds of audio for narration for still images
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SCANNERS

Nikon



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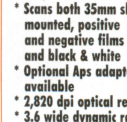
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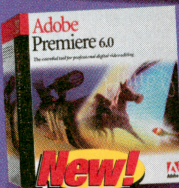
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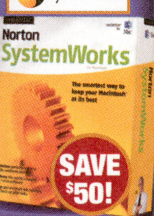
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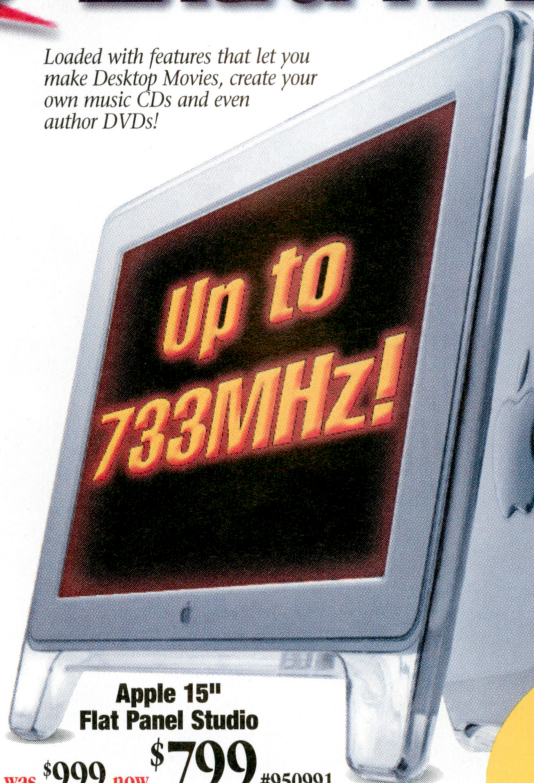
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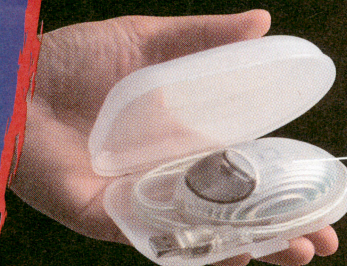
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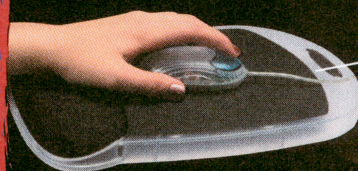


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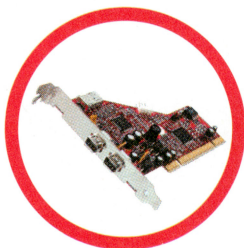
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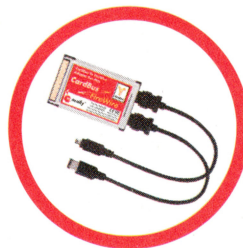


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Welcome to the Apple OS X Showcase

MacHome magazine, in conjunction with the Apple Developer Connection, built this very special Mac OS X Showcase section to keep you, our valued reader, apprised of the hottest products built especially to take advantage of Apple's new operating system. You can rest assured that this new section will grow with each passing month, spotlighting the coolest new products for Mac OS X. Be sure to check the Mac OS X Showcase monthly for a wide variety of new and innovative solutions that will make your Macintosh and Mac OS X experience as enjoyable as possible.



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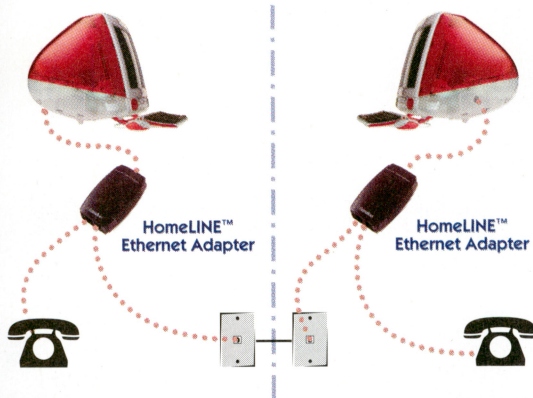
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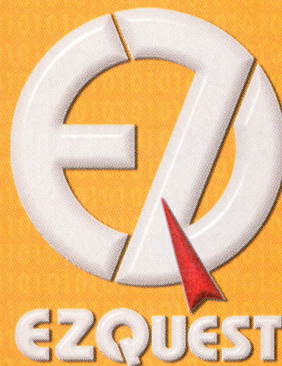
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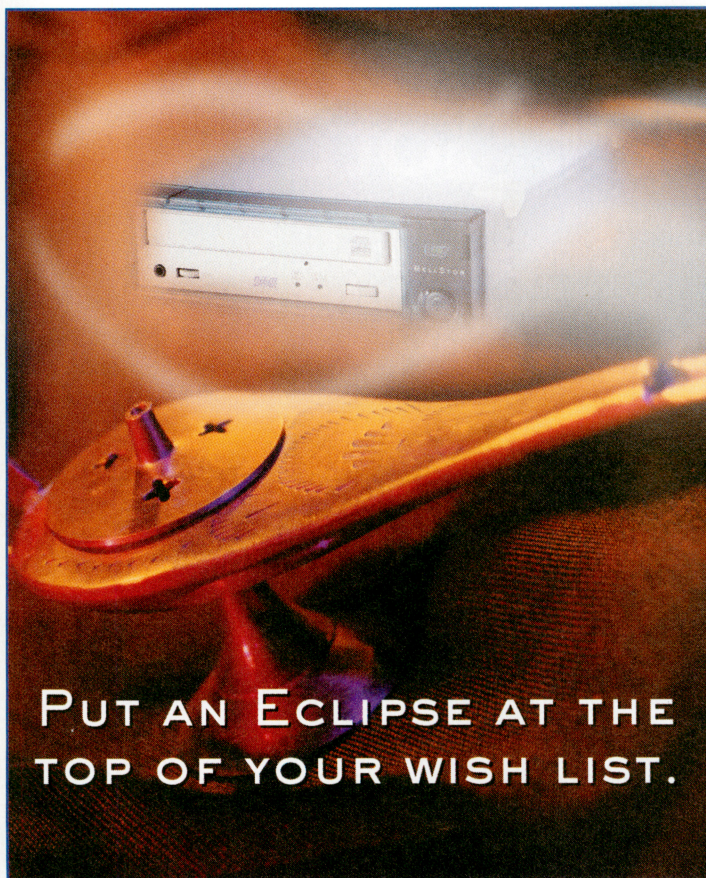
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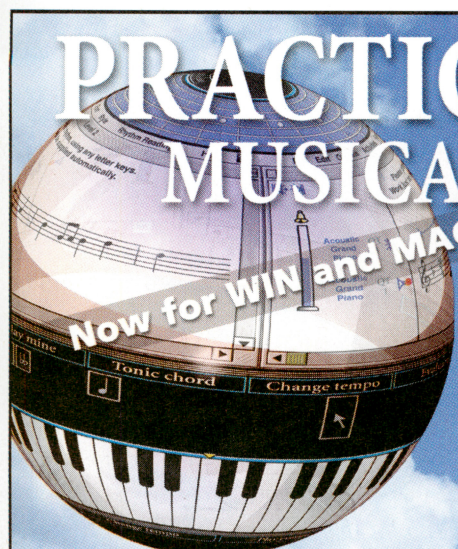


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MacHome Quiz Answers!!

from pg. 91

1. Hold down the Option key, and click on the Control Strip. Now you can drag up and down along either side of the desktop.
2. Highlight the CD icon on the desktop, then click Command-I to Get Info. The total playtime is shown in the comments section.
3. A clean install reinstalls the operating system. This process removes Preferences, Extensions, and Control Panels, placing them into a different folder so that the original Apple software can be activated. A clean install is useful as a last resort for getting rid of persistent Mac problems, but even after the clean install, you can use your old files and recover old Extensions.
4. Once the movie is open in the Player Viewer, click the Play icon, then click Command-Left Arrow.
5. Codec stands for compression/decompression — it's the algorithm (or program) that determines how an audio or video file is encoded to save space. The codec analyzes the file and determines which bits of data can be tossed away to save room. A decoder then plays back the file.
6. False. Image sharpening is used by an image-editing program like Photoshop to increase the definition of borders between colors. So instead of one color bleeding into the next, the edges of each color are more defined. This makes the image look sharper. It does not, however, change the focus — an out-of-focus image will stay blurry.
7. Under Preferences in iMovie's Edit menu, set Playback to Smoother Motion.
8. Hit Escape or Command-Period.
9. Push the space bar.
10. To skip forward 10 frames, hit Shift-Right Arrow. To skip backward 10 frames, hit Shift-Left Arrow.

Mac OS X: Ten Cheers

Answers to V Questions

Many years in the making, and computer years are even longer than dog years, Mac OS X should be heading for stores soon after this issue is released.

This new operating system — the program between your applications and hardware — changes some rules, adds many features, and updates the look and feel of your Mac. Under the hood, this OS has an entirely new engine; old code from the '80s has been rewritten for a sporty new feel. But is it for you? Find the answers to stay current and make a decision.

What are the important features that have been added to Mac OS X?

On a programming level, lots of improvements have been made, which you'll notice from a user's perspective. Pre-emptive multitasking lets your computer effectively manage more than one task with minimal slowdown. Memory protection isolates each program from the rest; if one should crash, the rest of your system will continue to function. Virtual Memory has been retooled to allocate RAM on the fly. And Mac OS X will take advantage of multiprocessors and the G4's Velocity Engine for fast computing.

By Zack Stern

The interface has also been significantly tweaked. The Dock at the bottom of your screen, like a redesigned Launcher, holds documents, applications, and control panels for easy access. The Aqua interface uses new buttons and sliders. And new graphical enhancements have been added like save boxes that stay connected to their documents. The biggest departure from Mac OS 9 is the file navigation, which by default effectively contains the clutter of multiple Finder windows. However, if you want to continue to use the same folder-opening hierarchy from Mac OS 9, you'll still have that option.

Will my old applications work with Mac OS X?

Yes. Your Mac OS 9 programs will work within the Classic

environment (see this month's the Way It Works). While this implementation won't take advantage of Mac OS X's new features, it will literally behave just the same as your current Mac OS. Classic gives room to continue using current applications during the upgrade to Carbon and Cocoa programs.

What are the requirements of Mac OS X?

Apple requires that you use an original G3 or better. Computers upgraded to G3s or G4s may not work, and the original G3 PowerBook also won't be supported. To run Classic applications, you'll need 128MB RAM; if you're only going to use OS X applications, you may survive with less although Apple won't support that setup.

When should I upgrade?

This answer depends first on your interest. If you've been counting the days to the Mac OS X release with Roman numerals, upgrade now. Even though current applications won't take full advantage of the new operating system, they will work just as well as on Mac OS 9. If you use a lot of peripherals, wait until their manufacturers support OS X. Or if you're a casual user, and you're nervous about upgrading, wait a few months until most of your applications work natively in Mac OS X. While you could still run your current Classic applications and utilize some of the improvements, the biggest benefits — and you'll notice them — come when all of your programs are Carbon or Cocoa.

When will Mac OS X be released?

On March 24, with a satisfying puff from the air-brakes, the Mac OS X convoy will pull into stores. For \$130, this operating system can give your Mac hardware new abilities. Although it may take some time to adjust to Mac OS X, it will quickly prove itself as a worthy upgrade. **MHJ**

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